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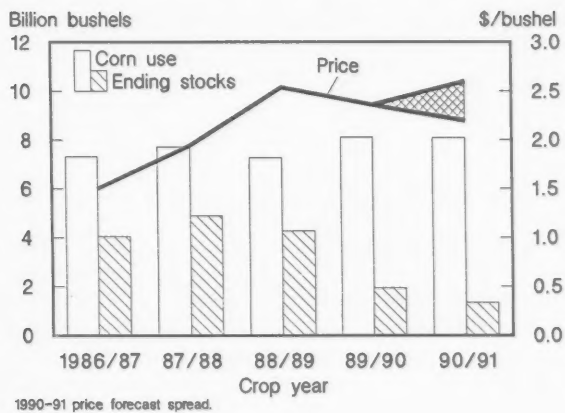
Economic  
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# Feed

## Situation and Outlook Report

**Corn: Use, Ending Stocks, and Price**



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## Summary

The feed grain supply for 1990/91 is forecast at 276.9 million metric tons, down 11.5 million tons from 1989/90. Production of 230 million tons surpassed last year's outturn by 9 million tons but was more than offset by a decline of 20 million tons in beginning stocks.

Disappearance is forecast down 5 million tons from last year's 242 million. While domestic disappearance is expected to be almost 6 million tons above 1989/90, exports are forecast down 11 million. Total use is expected to exceed production and imports by more than 6 million tons, lowering ending stocks to 39 million. The ending stocks-to-use ratio will fall to 16.4 percent from 18.7, and prices are expected to be steady to slightly higher than in 1989/90.

The new 1990 farm legislation provides the framework authorizing feed grain programs for crop years from 1991 to 1995. The legislation generally continues the market-oriented approach to farm policy reflected in the 1985 Food Security Act. While loan rates will be higher than if 1985 provisions were continued, producers will have additional planting flexibility.

The corn supply for 1990/91 is forecast at 9.3 billion bushels, 2 percent less than last year's 9.5 billion. This year's harvest, projected at 7.9 billion bushels, is 400 million bushels above the 1989 crop, but beginning stocks were down 600 million. Corn will account for a record 85 percent of the feed grain supply this year, up 2 percentage points from last year's share.

Disappearance of corn for 1990/91 is forecast at 8.05 billion bushels, 70 million less than in 1989/90. The reduction is due to a drop in exports of around 340 million bushels, offsetting a forecast rise in domestic disappearance of more than 270 million. Total disappearance is forecast to exceed production and imports by nearly 110 million bushels, resulting in a drop in ending stocks to 1.24 billion bushels. The ending stocks-to-use ratio would drop from 16.6 for 1989/90 to 15.4 for 1990/91. The slightly tighter stock situation is expected to hold prices in the \$2.20-\$2.60-per-bushel range.

Barley yields for 1990/91, forecast at 55.2 bushels per acre, are up 14 percent, more than offsetting a decline of 9 percent in area. The resulting crop of 419 million bushels is slightly higher than last year's, but 1990/91 beginning stocks are down 35 million, pulling total supply 20 million below 1989/90. Increased supplies of malting barley have led to a continued narrowing of the price gap between malting barley and the lower priced feed barley.

A gain in oats yields to 60.2 bushels per acre was not enough to balance an estimated 927,000-acre decline in harvested area. However, forecast production is bolstered by larger carryin stocks, and oats supply is up 32 million bushels. Oats prices continue to decline, and 1990/91 prices are forecast to average 30 to 40 cents per bushel below last year's \$1.49.

The estimated area harvested for hay is down 1.7 million acres to 61.7 million. Hay yields are forecast up 7 percent, bringing total hay production to over 151 million tons. Alfalfa production is forecast at 85.3 million tons, about 11 percent larger than 1989/90 in spite of a reduction in harvested area. Outturn of all other hay in 1990/91 is down 3 percent.

Feed and residual use of the four feed grains in 1990/91 is expected to increase 4 percent from 1989/90. The rise in use reflects expected increases in numbers of pigs farrowed, broilers and turkeys raised, and cattle on feed.

FSI use of corn in 1990/91 is expected to increase 2 percent from 1989/90 and to account for 16 percent of corn used. Production gains expected for the wet milling industry account for the increase. The biggest jump in use is expected in ethanol production, most of which is used as a fuel additive. The boost in gasoline prices has encouraged ethanol producers to increase production earlier than usual this year.

Declines in grain and soybean exports will result in decreased demand for rail and barge service. Although diesel fuel prices have risen 40 percent since August, competitive pressures have held rail rates near 1989 levels, and October barge rates were below a year earlier. Reduced water flows into the Missouri River again threaten to reduce water depths in the Missouri and Mississippi Rivers below St. Louis. Navigation conditions this winter on the Mississippi, however, are expected to be better than in either of the 2 previous years.

World production of coarse grains is forecast to rise 2.5 percent in 1990/91 to 820 million tons, the highest in 4 years. Foreign production is expected to advance 2 percent to a record 590 million tons, with the Soviet Union and China accounting for much of the gains. World consumption is forecast at 825 million tons, about equal to 1989/90, but foreign use is predicted to fall slightly for the first time in 5 years. The most significant declines are expected in Europe, where corn production is down dramatically. Because world production will trail use, another drawdown in world coarse grain stocks is forecast, but will be small relative to previous years.

A sharp reduction in coarse grain trade is expected in 1990/91, due to some substitution of wheat for coarse grains and bigger crops in many importing countries. The largest reduction in imports is likely in the Soviet Union, whose purchases are projected to drop by nearly 8 million tons. U.S. exports are forecast to decrease about 10 million tons, mirroring the decline in world trade. China's corn exports are forecast to rise substantially, increasing U.S. competition in Asian markets. However, aggregate competitor coarse grain exports are forecast about equal to 1989/90.

## 1990 Farm Legislation Sets Framework for 1991-95

The new 1990 farm legislation provides the framework that authorizes commodity programs for crop years 1991 through 1995. The 1990 legislation generally continues the market-oriented approach to farm policy of the 1985 Food Security Act. While loan rates will be higher than if 1985 provisions were continued, producers will have additional planting flexibility. The following highlights the commodity title provisions of this legislation for the 1991-95 feed grains programs.

### **Loan Rates**

The basic loan rate for corn will be set at 85 percent of the average of market prices for the 5 preceding years, excluding the high and low years. The basic loan cannot drop more than 5 percent from the previous year.

The Secretary of Agriculture may reduce the basic loan rate for corn in two ways. The first type of reduction is based on the projected ending stocks-to-use (S/U) ratio for the marketing year. The maximum allowed reduction is 10, 5, or 0 percent depending on whether the S/U is greater than or equal to 25 percent, between 12.5 and 25 percent, or less than 12.5 percent. If the S/U adjustment authority is used, a report must be submitted to Congress justifying the action.

The second reduction allows the Secretary to reduce the loan rate for corn by an additional 10 percent to maintain a competitive market position. Because of a minimum loan rate provision, this additional reduction is from a loan rate of \$1.76 unless 1) the S/U adjusted rate is higher than \$1.76, or 2) 80 percent of the 5-year average price (dropping the high and low) is less than \$1.76. If either of these conditions hold, then the S/U adjusted rate—rather than \$1.76—is used as the basis for the additional reduction.

The Secretary shall make loans and purchases available to producers of grain sorghum, barley, oats, and rye at a level that the Secretary determines is fair and reasonable in relation to that available for corn.

The Secretary may implement marketing loans for feed grains and may offer loan deficiency payments to producers.

### **Target Prices and Deficiency Payment Rates**

The corn and sorghum target prices for 1991-95 are to be continued at the 1990 level—not less than \$2.75 per bushel for corn and not less than \$2.61 for sorghum. The target price for oats is to be set fair and reasonable relative to corn, but cannot be less than \$1.45 per bushel. The barley target price cannot be less than 85.8 percent of the corn target price. The barley deficiency payment is to be based on the average market price for feed barley.

For crop years 1991 through 1993, the deficiency payment rate will be the difference between the target price and the price received by producers during the first 5 months of the marketing year (unless the basic loan rate is higher than the 5-month price).

For crop years 1994 and 1995, the deficiency payment rate will be calculated as the difference between the target price and the price received by producers during the 12 months of the marketing year. If the 12-month price is more than 7 cents above the 5-month price, then the 5-month price plus 7 cents will be used to calculate the deficiency payment rate.

Findley payments are authorized. If the Secretary adjusts loan rates for stocks/use or competitive position, the Secretary shall provide emergency compensation by increasing the deficiency payments by an amount necessary to provide producers the same total return as if loan rates had not been adjusted.

### **Acreage Reduction Programs**

For 1991, the Acreage Reduction Program (ARP) percentage for corn cannot be less than 7.5 percent nor greater than 20 percent. For crop years 1992-95, the ARP must be set at a level ranging from 10 to 20 if the stocks-to-use ratio (S/U) for the preceding marketing year is greater than 25 percent, and 0 to 12.5 percent if the S/U is less than or equal to 25 percent. Barley and sorghum ARPs also range from 0 to 20 percent and may be set separately and independently of corn based on supply and demand conditions. The oats ARP is set at zero for each of the 1991-95 years.

### **Planting Flexibility and Payment Acres**

A participating producer may plant up to 25 percent of a feed grain base to another crop (except fruits and vegetables) without losing feed grain base. A producer may also plant a feed grain on up to 25 percent of another crop base without a loss of feed grain loans and payments. A feed grain planted on another crop's flexibility acres is not eligible for deficiency payments but is eligible for loans, whether or not the producer participates in the feed grain programs.

A producer will not receive deficiency payments on his ARP acres nor on 15 percent of the crop base, regardless of the crop planted. If a producer plants another crop on up to an additional 10 percent of his crop base, he will not receive deficiency payments on those acres (see example 1).

### **0/92 Provisions**

In general, 0/92 provisions continue as under current law. These include payments guaranteed at not less than the projected deficiency payment rate. For 0/92 acres that otherwise would be in conserving use (CU), the Secretary must permit planting of minor oilseeds. Producers planting a



minor oilseed on 0/92 acres must choose between retaining the 0/92 payment or retaining loan eligibility for that oilseed on the farm. The Secretary may also permit the planting of industrial crops on 0/92 acres (see example 2).

#### Cover Crops on ARP and Conserving Use (CU) Acres

Except in arid and summer fallow areas, producers must plant an annual or perennial cover crop on 50 percent of ARP acres (not to exceed 5 percent of the base). A producer who elects to plant (and maintain for 3 years) permanent cover capable of improving water quality or wildlife habitat, is eligible for cost-share assistance of 25 percent of the approved cost of establishing the cover on not more than 50 percent of the acreage diverted from production, not to exceed 5 percent of the crop acreage base. The Secretary may permit planting of conserving crops for harvest on ARP and CU acres.

#### Farmer-Owned Reserve (FOR)

New provisions for the farmer-owned reserve (FOR) will take effect on December 1, 1990. The Secretary shall announce by March 15 of a marketing year if entry into the FOR will be permitted. He must permit entry if both of the following conditions are met and may permit entry if either condition is met: (1) the average market price for the 90 days preceding March 15 is below 120 percent of the loan rate for the crop, and (2) the projected ending S/U ratio for the marketing year for corn is greater than 22.5 percent. No minimum must be contained in the reserve, but if entry is allowed, the Secretary must specify a maximum quantity between 600 and 900 million bushels.

A producer's 9-month loan must mature before FOR entry is allowed. The contract is for 27 months from the date on which the original loan expires, unless the Secretary chooses to extend the loan for an additional 6 months. Storage pay-

Example 1:

#### A producer participates in the standard corn program for 1991

No deficiency payments	ARP: 10 acres	Idle
	NFA: 15 acres	Plant to any crop except vegetable or fruit
Deficiency payment acreage if planted to corn (based on 5-month price)	OFA: 0-10 acres	
	Corn for pay: 75-65 acres	Plant to corn

**ARP:** Acreage Reduction Program acres. Must be idled to meet program participation requirements (assumed at 10%).

**NFA:** Normal Flexible Acres. Can be planted to any crop except fruits, vegetables, and other crops if designated by the Secretary.

**OFA:** Optional Flexible Acres. Can be planted to any crop except fruits, vegetables, and other crops if designated by the Secretary. But planting a crop other than corn will reduce corn payment acres.

**CU:** Conserving Use Acres. Idled from corn production and maintained in a conserving use or planted to a minor oilseed.

Example 2:

#### A producer enrolls all corn base in the 0/92 program

No deficiency payments	ARP: 10 acres	Idle
	NFA: 15 acres	Plant to any crop except vegetable or fruit
0/92 deficiency payment acreage	0/92 CU: 6 acres	
	0/92 CU: 69 acres	Idle or plant to minor oilseed

ments stop when market prices exceed 95 percent of the target price, and the Secretary may charge interest if market prices exceed 105 percent of the target price.

Producers may repay their FOR loans anytime before maturity without penalty. FOR storage payments will be made at the end of each quarter rather than annually in advance.

#### **Other Provisions**

Payment yields are frozen at 1990 payment levels. In any given year, the Secretary may implement a land diversion if the Secretary determines that such a program is necessary to adjust total national feed grain acreage to desirable goals. Haying and grazing of ARP acres and conserving use acres will be permitted except for any consecutive 5-month period designated by the State ASC committee, between April 1 and October 1.

The Secretary may not impose strict or limited cross-compliance or offsetting compliance. A producer may not, however, build base for any crop on a farm if he is eligible to receive deficiency payments for any crop on the farm. Summer fallow provisions are continued in the new legislation.

### **Feed Grain Supply and Demand**

A supply of 276.9 million metric tons of feed grains is forecast for 1990/91, 4 percent, or 11.5 million tons, less than 1989/90. Although this year's production of feed grains, 230.1 million tons, is 9 million above last year's crop, carryin stocks were down more than 20 million tons and imports are expected to be down slightly.

The area harvested this year is forecast to decline 1.6 million acres to 89.5 million, but average yield rose almost 6 percent to 2.57 tons per acre. Not only did yields of all four feed grains increase, but the proportion of corn rose almost 5 percent to 74.4 percent of the area harvested. The yield of corn is forecast at 3 metric tons per acre compared with an average of 1.2 tons per acre for barley, oats, and sorghum.

Feed grain disappearance is forecast at 237.9 million tons, 5 million less than last year's use. While domestic disappearance is projected at 178.8 million tons, 5.8 million above 1989/90, exports will be down almost 11 million, to 59 million tons. Still, disappearance is expected to exceed production and imports by about 6.6 million tons, so ending stocks will drop to 39 million, the 4th consecutive year of decline. The ending stocks-to-use ratio will be reduced to 16.4 from 18.7 last year, and prices are expected to be steady to slightly higher.

#### **Feed Grain Use Up Sharply In June-August Quarter**

The feed and residual disappearance of feed grains totaled 22.8 million metric tons for June-August this year compared with an estimated 22.4 million tons a year earlier. However, when wheat feeding is taken into account, feed and residual use rises to 33.8 million tons, up 13 percent from June-August last year.

During June-August, the wheat harvest season, wheat prices were lower than feed grains, relative to their feed value, over a large area of the country. Feeders, seeking the lowest cost formulation, substituted wheat for at least a portion of feed grains—particularly in poultry and cattle feeding. With the onset of the corn and sorghum harvest, feed grain prices have dropped. However, some wheat feeding likely will continue in the coming months, not only because of continued price advantage in some areas, but also because feeders had booked wheat earlier.

#### **Corn**

##### **Larger Crop Falls To Offset Lower Carryin Stocks**

The National Agricultural Statistics Service (NASS), in November, forecast this year's corn crop at 7.94 billion bushels, 400 million bushels above 1989. The increase, however, fell about 180 million bushels short of offsetting the 580-million-bushel drop in carryin stocks. Stocks combined with production gives a supply of 9.3 billion bushels of corn for the 1990/91 marketing year, 2 percent less than 1989/90's supply of 9.5 billion.

Favorable growing conditions during June-August generated a forecast of a record-breaking yield by early September, despite a wet spring that delayed plantings in much of the Corn Belt. In September, NASS forecast an indicated yield of 121.7 bushels per acre and a potential crop of 8.1 billion bushels. However, in mid-September the condition of the corn crop began to decline and, as the crop progressed toward harvest, it became evident that the ears were not filling sufficiently nor were the test weights heavy enough to produce a record yield. Among the factors accounting for the low test weights are leaching of nitrogen from the soil by above-normal rainfall during the summer, increased damage by corn borers and corn root worms, and a dry period in western and southern Iowa in mid-September.

States showing the largest decrease in yield in November from the indicated yield in September were Illinois and Iowa—down 7 and 6 bushels per acre. Among the other 15 major corn producing States, Indiana, Nebraska, Ohio, and Pennsylvania were down 2 bushels an acre, South Dakota down 3 bushels, and Wisconsin's yield increased a bushel an acre. Nine of the States showed no change.

### Harvest Lags in Eight Major Corn Producing States

By the end of October, harvest in Colorado, Illinois, Indiana, Kentucky, Michigan, Ohio, Pennsylvania, and Wisconsin lagged significantly behind the previous 5-year average stage of completion. Weighted by expected area harvested for grain, harvest in these 8 States had advanced 44 percent compared with these States' 5-year average of 67 percent. Harvest in the remaining 9 of the 17 major corn producing States was 80 percent completed as against a 5-year average of 72 percent for those States. The 8 States delayed in their harvest progress this year represent 44 percent of the area expected to be harvested in the 17 States and almost 41 percent of the total U.S. area to be harvested.

In January 1991, NASS will publish an estimate of yield and production for the 1990 crop. In 7 of the 10 years from 1980 to 1989, the January yield estimate exceeded the prior November forecast. For the 1986 crop, the estimate was unchanged, and it decreased for the 1987 and 1989 crops. The area harvested consistently changed in the same direction as yield because the percentage change in production was, on average, double or more the percentage change in yield. In the 2 years when January yield estimates were lower, the average difference in yield was 0.5 percent and production was 1.1 percent lower. For the 7 years when yield estimates were higher in January, the average increases were 1 percent for yield and 2 percent for production. The largest adjustment upward was in 1988 when the yield estimate increased 2.3 percent and production increased 5.4 percent.

### 1990/91 Use Down 1 Percent; Lower Exports To Offset Higher Domestic Demand

Disappearance of corn in 1990/91 is forecast at 8.05 billion bushels, 70 million less than the 1989/90 use of 8.12 billion bushels. Food, seed, and industrial (FSI) use is expected to increase about 30 million bushels, to 1.32 billion bushels. The surge in glucose use this past year is not expected to repeat in 1990/91, and a slowdown in economic activity is expected to ease the demand for industrial starch. However, if high crude oil prices continue through much of the year, increased ethanol production for gasoline blending could push corn disappearance above the forecast.

Feed and residual use of corn is projected at 4.7 billion bushels, 5 percent, or 242 million bushels above last year's disappearance. Grain-consuming animal units are expected to be up 2.3 percent with most of the increase in the poultry sector. However, protein feeds make up a larger share of the feed mix in poultry production than in livestock production.

Feed and residual use also will depend on conditions next summer. If the wheat supply is large, and wheat prices are low relative to corn, the large-scale feeding of wheat that occurred during June-August this year likely would be repeated. Conversely, if U.S. and world wheat production is

on the low side, and corn growing conditions are good, wheat feeding likely would be considerably lower.

Corn exports are forecast at slightly over 2 billion bushels, down 342 million bushels, almost 15 percent, from 1989/90's shipments of 2.37 billion bushels. A large grain crop in the USSR this year and an increase in wheat used as feed are the main factors underlying the lower expected exports. Accumulated inspections for export through November 8 totaled almost 247 million bushels, down 31 percent from inspections for the same period last year. Inspections likely will run below a year earlier by a greater margin through early next calendar year—the period when USSR shipments were particularly large last year. Outstanding sales on November 8 this year were 48 percent less than a year earlier, but if the USSR is excluded, outstanding sales are down only 9 percent.

### June-August Supply Down

The June-August supply this year—2,843 million bushels in stocks June 1 and imports of 200,000 bushels—was down 576 million from a year earlier. FSI use this year was up almost 10 million bushels to 340 million, and exports were up 39 million to 503 million bushels. However, feed and residual disappearance declined 39.5 million bushels to 656 million, offsetting all but 10 million of the gain in FSI and exports. This left total disappearance for the quarter of 1,498 million bushels compared with 1,489 the same quarter last year.

Stocks in all positions September 1, the beginning stocks for 1990/91, totaled 1,344.5 million bushels, almost 586 million bushels less than beginning stocks for 1989/90. On-farm stocks September 1 amounted to 754.8 million bushels, 56 percent of total stocks. On September 1, 1989, farmers held 967.5 million bushels in on-farm storage—50 percent of

Table 1--Corn supply, disappearance, and stocks, Jun.-Aug.

Item	1988/89	1989/90
Million bushels		
Supply:		
Beginning stocks, June 1	3,419.3	2,843.2
CCC	417.7	299.3
FOR	945.6	392.5
Loan	811.7	444.1
Uncommitted	1,244.3	1,707.3
Imports (Jun.-Aug.)	0.4	0.2
Total	3,419.7	2,843.4
Disappearance:		
Food, seed, & industrial	332.1	340.0
Exports	463.4	502.6
Feed and residual	693.8	656.3
Total	1,489.3	1,498.9
Ending stocks Sept. 1:		
CCC	362.5	233.0
FOR	724.6	386.7
Loan	336.7	112.2
Uncommitted	506.6	612.6
Total	1,930.4	1,344.5

total stocks. Conversely, off-farm stocks this September were 589.7 million bushels, almost 44 percent of total stocks. However, if Commodity Credit Corporation (CCC) stocks are taken into consideration (held in off-farm storage), this year's September 1 stocks in off-farm storage under largely commercial interest (some producer-owned grain is also stored off farm) totaled 357 million bushels, 26.5 percent of total stocks. Last year's September off-farm stocks under commercial interests were 600 million bushels, or 31 percent of total stocks.

#### June-August Farm Prices Strong

The price received by farmers for June-August averaged \$2.57 a bushel, \$0.15 higher than the \$2.42 average for the same period last year. The stronger price also reflected an increased tendency by farmers this year to hold stocks relative to a year earlier. Two factors underlie this tendency, namely the tighter stock situation and the threat of reduced corn yields and production this year. From September 1989 through mid-March 1990, the Chicago Board of Trade (CBT) July 1990 corn option traded within a small range of an average price of \$2.50 a bushel. From mid-March until early July, the July futures price rose steadily to slightly over \$2.90 a bushel. Dry subsoil moisture conditions over much of the Western Corn Belt, and delayed plantings in Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, and Wisconsin, raised fears of reduced yields and production for 1990. In addition, March 1 stocks were 8 percent under year-earlier stocks and disappearance was at a near-record pace.

By mid-July, abundant rainfall and mild weather over the major corn producing region dispelled much of the weather-related threats to the 1990 crop, and the rate of use slowed in July and August, resulting in a normal seasonal decline in price. The ending stocks-to-use ratio was 16.6, compared

with 26.2, but the season-average farm price for 1989/90 was \$2.36 a bushel, \$0.18 under the drought year of 1988/89. In 1988/89, the market obviously put more emphasis on the sharp reduction in the 1988 crop, 30 percent under 1987, than on the large beginning stocks, 4.3 billion bushels.

#### Sorghum

##### 1990 Crop Down Nearly 9 Percent

The forecast harvested area for sorghum was 9.3 million acres this year compared with last year's 11.2 million, a drop of 17 percent. Improved weather for the 1990 crop raised yields from last year's 55.4 bushels per acre to a forecast 60.5 bushels this year. However, the higher yield was not enough to offset the drop in harvested area, and production is forecast at 560 million bushels, more than 9 percent below 1989.

Even more important than the 58-million-bushel decrease in this year's crop was a decline of 220 million bushels in beginning stocks. On September 1, 1989, stocks amounted to 440 million bushels, but disappearance in 1989/90 of 838 million bushels exceeded the 1989 crop by 220 million bushels, resulting in a 50-percent decline in 1990 stocks from a year earlier. The supply of sorghum for 1990/91 is forecast at 780 million bushels, more than 26 percent under the 1989/90 supply of 1,058 million.

##### Ending Stocks Lowest Since 1976

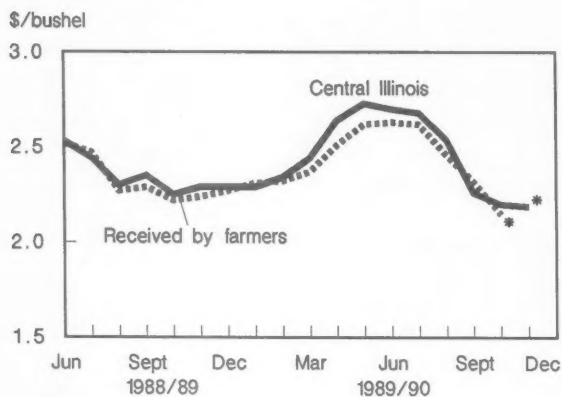
Disappearance of sorghum for 1990/91 is forecast at 680 million bushels, 19 percent under last year's 838 million bushels. Feed and residual disappearance is expected to decline to 440 million bushels from 516 million in 1989/90, and exports are forecast at 225 million bushels, a decline of nearly 27 percent from 307 million bushels last year. FSI use is expected to be about the same as last year's use of 14.7 million bushels. Total use is expected to exceed this year's production by 120 million bushels, reducing forecast ending stocks to 100 million bushels—the lowest since September 1, 1976 when ending stocks were estimated at 82.3 million bushels.

Accumulated inspections for export for the 1990/91 marketing year through November 8 were 33.7 million bushels, little over half the inspections of 61.7 million bushels for the same period in 1989/90. However, outstanding sales November 8 were 45.9 million bushels, close to 48.9 million bushels a year earlier. December stocks will give the first clue to whether the forecast feed and residual figure is on target.

If disappearance and ending stocks conform to forecast, the ending stocks-to-use ratio will be down to 14.7, but sorghum prices will still be affected by the price of corn. Prices received by farmers for sorghum generally average about 90 percent of the price of corn on a national basis. However, they likely will average slightly higher this year.

Figure 1

#### Monthly Average Corn Prices

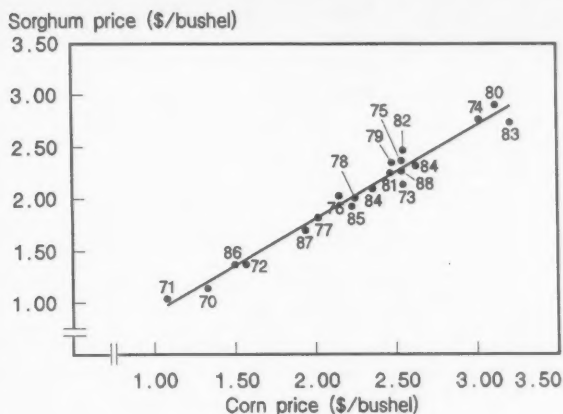


\*Mid-month price.



Figure 2

## Relationship of Corn and Sorghum Prices



In September, the average farm price of sorghum was 95 percent of the price of corn. The mid-October price was back to 90 percent, but if subsequent post-harvest stock reports bear out the forecast for stocks, sorghum prices likely will move higher relative to corn. In 1975/76, when ending stocks were down to 82.3 million bushels, the season-average price of sorghum was 93.3 percent of the season-average price for corn. The 1990/91 season-average price for sorghum for 1990/91 is forecast in the range of \$2.00 to \$2.40 a bushel.

#### June-August Disappearance Down Slightly

The June-August supply of sorghum, combining June 1 stocks of 335 million bushels and imports of 100,000, was 40 percent below the year-earlier supply of 559 million bushels. Disappearance for June-August this year totaled 115.3 million bushels, within 3.5 percent of the same period in 1988/89. Exports for the quarter were down 21.3 million bushels to 50.8 million but feed and residual disappearance this year was up 17.8 million bushels to 61 million bushels. FSI use was down 600,000 bushels with two-thirds of the reduction in processing use.

The 4.2-million-bushel decrease in June-August use this year from the same period last year had little additional impact on ending stocks, considering the supply for the quarter was 223.9 million bushels below year-earlier supply. The net result was ending stocks of 220 million bushels, about one-half year-earlier ending stocks. The ending stocks-to-use ratio was 26.2 compared with 1988/89's ratio of 55.0. However, the stocks-to-use ratio was not low enough to raise the price of sorghum relative to the price of corn. The season-average farm price of sorghum for 1989/90 was 89 percent of the season-average farm price of corn, the same as 1988/89.

Table 2--Sorghum supply, disappearance, and stocks, Jun.-Aug.

Item	1988/89	1989/90
Million bushels		
Supply:		
Beginning stocks, June 1	559.0	335.0
CCC	363.8	190.2
FOR	45.0	12.7
Loan	40.1	7.7
Uncommitted	110.1	124.4
Imports (Jun.-Aug.)	0.0	0.0
Total	559.0	335.0
Disappearance:		
Food, seed, & industrial	4.2	3.6
Exports	72.1	50.8
Feed and residual	43.2	61.0
Total	119.5	115.3
Ending stocks Sept. 1:		
CCC	340.9	162.5
FOR	28.0	12.3
Loan	17.7	1.8
Uncommitted	52.9	43.2
Total	439.5	219.8

## Barley

### Barley Crop Shows Modest Gain

The 1990 barley crop is estimated at 419 million bushels, only slightly higher than the 1989 outturn of 404 million. Higher yields but lower harvested area about offset each other. Improved soil moisture during a critical period of the growing season led to a national average barley yield of 55.2 bushels per acre, compared with 48.6 for the 1989 crop and a drought-reduced 38.0 bushels per acre in 1988. On the other hand, the 1990 estimated harvested area of 7.6 million acres is 9 percent short of last year. About 92 percent of the area planted with barley was harvested for grain this year, up slightly from last year, but far above the drought year of 1988 when abandonment pushed the harvested area down to 78 percent.

Recent year-to-year changes in yield reflected improved but nonetheless dry conditions in some States (particularly the Pacific Northwest) and a return to favorable conditions in others. Washington registered a drop in yields from 58 bushels per acre in 1989 to 56 this year. Montana, one of the Nation's largest barley producers, harvested only 39 bushels per acre this year, down 9 percent from 1989.

Other States fared much better. North Dakota is the leading State in barley outturn, and despite a 150,000-acre decline in harvested area, production was up 35 percent as the yield of 53 bushels per acre was up 16 bushels from a year earlier. Other major producers showing yield gains include South Dakota, 14 bushels, Minnesota, 8 bushels, and Idaho, 2 bushels per acre.

Barley stored in all positions on September 1, 1990 was estimated at nearly 411 million bushels, down 1 percent from a year earlier. Of total stocks on hand, 258 million were



stored on farms, 2 percent above a year earlier. Off-farm stocks, at 152 million, were 7 percent below last year. As expected, the States that grow the most barley also store the most, with just under one-third of the stocks in North Dakota, and Minnesota and Montana combining for roughly another third. By the end of October, 27.4 million bushels of barley had been placed under loan, compared with 15.9 a year earlier.

Prices averaged lower during the harvest season compared with a year earlier. Average farm prices for the 1990/91 crop are expected to fall to between \$2.10 and \$2.30 per bushel. In 1989/90 and 1988/89 prices were \$2.42 and \$2.80, respectively.

Cash prices for malting barley at Minneapolis during 1989/90 fell 22 percent from a year earlier, from \$4.11 to \$3.20 per bushel. In contrast, cash prices for feed barley at Duluth were down only 5 percent—\$2.31 to \$2.20 per bushel. Thus, the price gap between the two narrowed from \$1.80 per bushel in 1988/89 to \$1.00 in 1989/90. Early into the 1990/91 season, an abundant crop in key malting barley producing States pushed malting barley prices even lower, while feed barley prices continued to decline much more slowly. From June through October 1990, the spread averaged under 35 cents per bushel.

Feed and residual disappearance for the 1990/91 crop year is forecast at 175 million bushels, down 10 million from a year earlier. FSI use is projected at 185 million bushels, up marginally from the 2 previous years.

Barley exports for 1990/91 are forecast to be 85 million bushels, compared to 89 million in 1989/90. By early November 1990, barley export commitments amounted to 68.7 million bushels, about 12 million more than the same time last year. Barley exports this year will once again depend heavily on Export Enhancement Program sales.

The larger 1990 production was more than offset by a 35-million-bushel decline in beginning inventories, bringing total supplies to only 595 million bushels, compared to 615 million and 622 million in the 2 previous years. While total use is forecast down 10 million bushels, it will still exceed production and point to another year of declining ending inventories. By the end of May 1991, barley inventories are forecast to reach only 150 million bushels, down from 196 million in 1988/89 and 161 million in 1989/90. This translates into a projected stocks-to-use ratio of 34 percent for 1990/91, about the same as the year before.

## Oats

### *Oats Yields Increase; Harvested Area Declines*

Oats production in 1990 is forecast at 358 million bushels, down from 374 million the previous year. Favorable conditions during the growing season across much of the oats area boosted yields to over 60 bushels per acre—about 10 percent above the previous 10-year average. Thus, the production decline was a result of a 13-percent drop in harvested acres.

Reduced yields and area in Iowa, the largest producing State in 1989, pushed production down almost 25 percent. Yields also declined in Illinois and Michigan. Minnesota yields, benefiting from timely rains during the growing season, are forecast at 66 bushels per acre, up 20 percent from 1989. For the same reason, South Dakota yields are up 40 percent to 56 bushels per acre. Yields are also forecast to increase in other major oats States, including Wisconsin, North Dakota, and Nebraska.

The planted area, 10.4 million acres, continued to decline substantially in 1990. Once again, the need to plant oats as a cover crop on ARP acres slackened. In 1989, 1.8 million fewer acres were planted to oats than the year before. In 1990, the decline was an additional 1.7 million acres.

NASS estimated 352.5 million bushels of oats stocks were held on farm and off as of September 1, 1990. This is the first NASS estimate of September 1 oats stocks ever. However, USDA's Economic Research Service estimated September 1, 1989 stocks at 373.3 million bushels. Oats inventories at the end of the crop year (May 31, 1991) are forecast at 125 million bushels, down from 157 million a year earlier.

With market prices well above the loan rate, very little oats are expected to be placed under regular loan; the vast majority (as in the past) will remain free stocks. In 1989, 156 million bushels of the total ending stocks of 157 million bushels were free. However, with expanded consumption and dwindling stocks, the stocks-to-use ratio for the 1990/91 year is expected to be tighter this year at 28 percent, compared with 41 percent a year earlier, and 33 in 1988/89.

The United States continues to be the World's largest net importer of oats. Oats imports for the 1990/91 year are forecast at 60 million bushels, down from 72 million a year earlier. Imports account for more than 10 percent of total supply for the year. Most of the imports will come from Canada and Scandinavia. Even though the level of imports is expected to decline by 17 percent, it remains high by historical standards. Exports as usual are forecast to be minimal.

Oats use during the 1990/91 year is forecast to expand significantly to 451 million bushels. In 1989/90, only 387 million were consumed. As oats prices continue to fall, oats feeding becomes more attractive. In 1990/91, the feed and residual use of oats is forecast to rise more than 20 percent to 330 million bushels.

The FSI use of oats is forecast to register only a marginal increase from 1989/90's 115 million. The reported increase in the amount of oats consumed as food in 1988/89 and 1989/90 appears to be tapering off in response to a study that questioned the efficacy of oat bran in reducing serum cholesterol.

Average farm prices for the 1990/91 year are forecast to decline, to a range of \$1.10 to \$1.20 per bushel. This continues the slide from the unusually high \$2.61 per bushel in 1988/89 when the crop was cut sharply by drought.

## Hay

The hay supply for the 1990/91 crop year is estimated at 178.6 million tons, an increase of almost 16 million tons over 1989/90. Production in the current year is forecast at 151.5 million tons, up 6 million or 4 percent from the 145.4-million-ton crop taken in 1989/90. During the second half of the 1980's, hay production averaged 144.6 million tons and peaked at 155.5 million in 1986/87. Relatively large May 1 carryin stocks of 27.1 million tons, more than 50 percent larger than the 1989/90 beginning stocks, was the major factor in this year's increase in supply.

The harvested area for all hay fell from 65.1 million acres in 1988/89 to 63.4 million last year and is expected to drop further to only 61.7 million in 1990/91. Production, therefore, is being bolstered by increased yields, which are forecast at 2.45 tons per acre, up 7 percent from the previous year, and up more than a fourth from the drought-ravaged yield of 1988/89.

The decline in harvested area this year was generally shared by many States. However, Iowa (down 600,000 acres to only 1.8 million), North Dakota (down 400,000 to only 3.0 million), Wisconsin, and Minnesota all registered large declines. Nebraska's harvested area estimate is up 400,000 acres to reach 3.7 million acres. South Dakota continues to harvest more hay acres than any other State, this year totaling 4.2 million acres. In terms of hay production, however, Wisconsin is the Nation's leader, with forecast production of 11.8 million tons—an increase of almost 50 percent from last year.

Alfalfa is being harvested on 24.9 million acres this year—down 1 million acres, or 4 percent, from last year. All other hay is being harvested on an estimated 36.8 million acres, 1.8 percent or 600,000 acres less than last year.

Production of alfalfa, an important forage crop for the dairy industry, totaled 85.3 million tons, up 11 percent from the 1989/90 level of 77.2 million. Yields rose in 1990/91 to 3.42 tons per acre, an increase of 15 percent from 1989/90. Alfalfa production in the 10 major dairy States (California, Iowa, Michigan, Minnesota, New York, Ohio, Pennsylvania, Texas, Washington, and Wisconsin) rose significantly in 1990, from 38.1 million tons last year to 44.4 million tons. A rise occurred in 9 of the 10 States, often with healthy margins. For example, Wisconsin (always a large alfalfa producing State) boosted production from 7.1 million tons to over 10.5 million. Large area losses in Iowa more than offset yield increases and led to the sole production loss among the 10 states.

Production of all other types of hay, largely lower quality varieties primarily fed to beef cows, fell slightly during 1990, as both yields and harvested areas registered declines. Production, forecast at 66.1 million tons, is down from 68.2 million in 1989.

Among the 10 leading States for beef cow numbers, changes in acreage and yields were mixed. (These States—Florida, Iowa, Kansas, Kentucky, Missouri, Montana, Nebraska, Oklahoma, South Dakota, and Texas—accounted for 40 percent of "other hay" production in both 1989 and 1990). Continued dry conditions in Texas during the summer months led to yield and production losses of more than 20 percent. However, area and yield gains generated production gains of 30 and 40 percent in Nebraska and South Dakota.

In 1989/90, average prices received by farmers for all hay rose 80 cents per ton to \$86.00. This gain was bolstered by a 2-percent rise in alfalfa prices, increasing from \$92.73 to \$94.58 per ton. However, average prices for other hays in 1989/90 declined \$2.59 per ton to \$66.10, a fall of about 4 percent.

Through the first 6 months (May-October) of the 1990/91 marketing year, prices for alfalfa averaged 81 cents per ton higher than the previous year. Conversely, other hay prices have fallen about \$1.36 per ton. All hay prices combined were down 30 cents to \$88.42 per ton. Weather conditions for the upcoming winter and spring months (and the effect on hay consumption) will once again be a major factor in hay prices in the late winter and spring. Generally, if spring temperatures come early, grazing on ranges and pastures would reduce the demand for hay, and would be a moderating influence on hay prices. The converse is also true.

The number of roughage-consuming animal units (RCAU's) estimated for 1990/91 is 77.7 million, up almost 1.4 million (almost 2 percent) from 1989/90. Hay supply per RCAU, estimated at 2.3 tons per animal unit, is up 8 percent, but most of the increase is due to larger beginning stocks. Disappearance per RCAU is expected to exceed 2 tons in 1990/91.

Last year, 2.13 tons were used per RCAU. At last year's rate of use, carryout stocks would be reduced to 13 million tons, and this likely would produce substantial upward pressure on prices.

Range and pasture conditions throughout the United States, at 71 percent, are in the middle of the "poor to fair" category, slightly above 1989 and still below the 1979-1988 average of 75 percent. Continued drought in California has reduced the State's range and pasture rating to an astonishing 33 percent, considered extreme drought conditions. California had an average rating of 81 percent over 1979-88, and last year registered a rating of 72 percent as of the beginning of November. Iowa conditions have improved greatly and at 80 percent are in the "good to excellent" category, along with Illinois, Indiana, Kentucky, Michigan, Minnesota, New York, Ohio, Pennsylvania, Virginia, Washington, and Wisconsin. All are States with a significant number of beef or dairy cattle.

### Feed Demand

Feed and residual use of the four feed grains—corn, sorghum, barley, and oats—totaled 134 million metric tons in 1989/90, up from 120 million in 1988/89. Use in 1990/91 is expected to increase nearly 4 percent to 139 million metric tons. Wheat feeding has also increased in the 1990/91 June 1-May 31 marketing year, because of lower prices. In 1989/90, feed and residual use of wheat totaled 4.4 million metric tons but is expected to reach more than 12 million in 1990/91.

The index of grain-consuming animal units (GCAU's) increased almost 2 million between 1988/89 and 1989/90. The index is a measure of livestock and poultry numbers, weighted by concentrate needs. A rise in the number of

GCAU's in 1990/91 mainly reflects expected increases in numbers of pigs farrowed, broilers and turkeys raised, and cattle on feed.

Similarly, an increase in the number of beef cattle in 1990/91 accounts for most of the increase of slightly more than 1 million units of roughage-consuming animal units (RCAU's). The number of RCAU's continues to lag behind GCAU's. Since 1987/88, when the number of cattle and calves dropped below 100 million head, the number of GCAU's has been slightly above RCAU's, reflecting a higher proportion of concentrate-consuming animals.

Feed demand by the dairy sector in 1990/91 is expected to be slightly higher than in 1989/90. With dairy cow and heifer numbers nearly the same as last year, the increase would be in feed per cow. In 1990/91, dairymen are expected to continue high rates of concentrate feeding, although increases are expected to be relatively small because milk prices are forecast to decline from the very strong levels of 1989/90. Concentrates fed per cow have been generally trending up since 1972. During periods of sharp increases in feed prices such as 1988/89, concentrates fed rise less than normal.

Beef production in 1991 is forecast up 1 percent from 1990. In response to favorable feeder cattle prices, cattlemen are expected to continue herd expansion, keeping the number of cows in the slaughter mix at low levels. Feedlot operators are expected to feed more cattle, resulting in a larger proportion of grain-fed animals in the slaughter mix. Corn prices in 1990/91 are expected to average about the same as a year earlier, and the demand for grains from the cattle industry likely will remain strong.

Hog producers surveyed on September 1, 1990 indicated they planned to farrow 2 percent more sows in both Septem-

Figure 3  
Grain- and Roughage-Consuming Animal Units

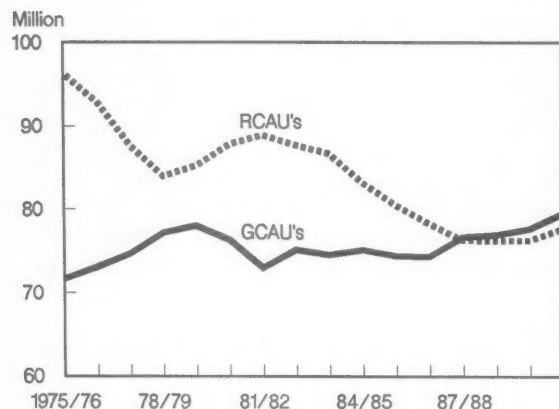
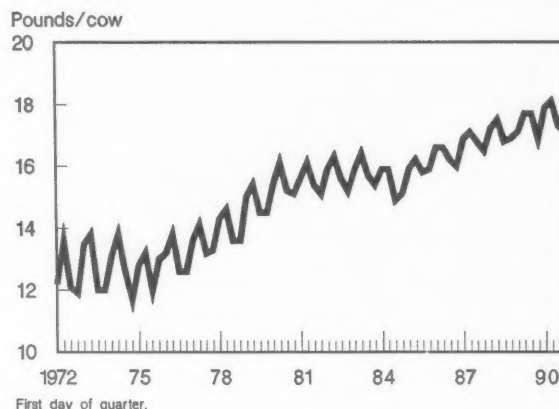


Figure 4  
Grain and Other Concentrates Fed to Milk Cows



ber-November 1990 and December 1990-February 1991. In December 1989-May 1990, producers had farrowed 5 percent fewer sows than the year earlier, and in June-August 1990, 3 percent less. This decline in hog numbers increased prices received and improved returns above feed costs. Increased numbers of pigs in 1990/91 would boost feed use of course grains, particularly corn. However, much of the gain in use would fall in the second half of the feed year.

Feed use by the poultry sector will increase in 1990/91 as more birds are raised and egg production is increased. Reduced supplies of beef and pork at record prices have led consumers to eat more lower priced poultry. Broiler output in 1990 is forecast at 6 percent above 1989, and in 1991 up another 6 percent. Turkey production in 1990 is expected to be up 9 percent from 1989 and gain another 6 percent in 1991. Egg production is forecast up 1 percent year-over-year in both 1990 and 1991.

### Food, Seed, and Industrial Use of Corn

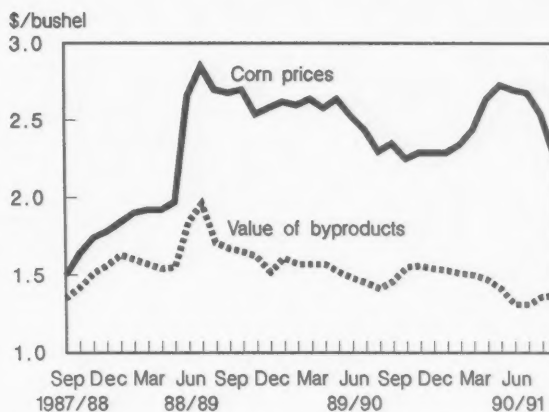
Food, seed, and industrial (FSI) use of corn in 1989/90 is estimated to have represented 16 percent of total use, down 1 percent from 17 percent in 1988/89. In 1990/91, FSI use is expected to increase 2 percent to 1,320 million bushels, but total use is forecast to decline 1 percent. In contrast, FSI use in 1989/90 was up 4 percent from 1988/89, while total use surged 12 percent.

Producers of wet-milled corn in 1990/91 can expect steady net corn costs even with slightly higher projected corn prices and steady prices for protein supplement and vegetable oils. Byproducts from wet milling include corn gluten feed and meal, which are used as protein supplements. Their prices would be expected to follow those of soybean meal. Corn oil is the other byproduct, and competes with soybean oil. Net corn costs in September-March 1989/90 were lower than in 1988/89 but higher through the end of the marketing year because corn prices were increasing and byproduct returns were declining during the year.

High-fructose corn syrup (HFCS) use in 1990/91 is expected to increase 3 percent from the 370 million bushels of corn used in 1989/90 to produce HFCS. Corn use in HFCS during 1989/90 was 2 percent above 1988/89. HFCS use in 1988/89 was up 1 percent from a year earlier when weak soft drink sales accompanied cool, rainy summer weather. In 1989/90, weather was variable, leading some producers to experience heavier-than-expected demand and others to have volumes fall short of expectations. The 1990/91 forecast assumes "normal" weather, which would boost soft drink sales and thus HFCS use.

Use of corn to produce glucose and dextrose in 1989/90 was up 5 percent from a year earlier. Industry sources reported

Figure 5  
**Wet Milling Corn Cost**



the increase was in confectionery products. Corn syrup had been used in many canned fruits, but these fruits are increasingly packed in a water or juice medium that minimizes calories. Offsetting this loss of market is the use of some corn syrup in beer production; since the calories are converted to alcohol, calories per can are reduced. A slowing of the economy might slow consumer expenditures on confectionery products and reduce the rate of increase next year. Current forecasts for 1990/91 corn use in glucose and dextrose are for a 2-percent rise over 1989/90.

Starch production from corn has been variable from year to year since 1975. Most starch is used for industrial purposes, and production depends on economic growth. Production of corn starch in 1990/91 will likely increase about 1 percent from 1989/90. However, even with relatively slow economic growth in 1989/90, corn starch production was up 5 percent from 1988/89.

Alcohol made from corn by the wet-milling industry is expected to total 222 million bushels for 1989/90. Most of this alcohol is used for fuel. In 1989/90, domestic use of ethanol for fuel blending was down from a year earlier as oil companies switched to methyl tertiary butyl ether (MTBE) to meet mandated oxygen requirements and to use as an octane enhancer. However, large export sales offset the decline in domestic fuel use. Recent sharp increases in gasoline prices have renewed interest in alcohol for blending, and HFCS plants that can switch to alcohol are increasing the proportion of capacity devoted to producing alcohol. The switch was earlier than usual, so that corn use for wet-milled alcohol in 1990/91 is predicted to be up 6 percent from last year.

Recent legislation may impact ethanol use and therefore corn use. The Clean Air Act Amendments of 1990 specify that beginning November 1, 1992, gasoline marketed in about 41



Table 3--Corn: Food, seed, and industrial use 1/

Year beginning September 1	-----Wet-milled products-----				Dry-milled alcohol	Dry-milled and alkaline cooked products	Seed	Total
	HFCS	Glucose and dextrose	Starch	Alcohol				
-----Million bushels-----								
1975	45	162	116	5	20	154	20	522
1976	62	164	116	10	15	155	20	542
1977	80	170	124	10	20	158	20	582
1978	105	170	124	15	20	155	20	609
1979	127	170	120	25	20	158	20	640
1980	165	183	120	35	35	160	20	718
1981	185	183	130	83	35	162	19	797
1982	215	188	127	130	50	170	15	895
1983	256	189	147	150	50	164	19	975
1984	310	187	143	170	100	160	21	1,091
1985	328	188	152	185	127	161	19	1,160
1986	339	185	155	200	135	161	16	1,191
1987	359	187	167	200	136	163	17	1,229
1988	362	196	164	210	139	161	19	1,251
1989	370	206	172	222	140	161	19	1,290
1990	380	210	173	235	142	161	19	1,320

1/ Data are estimates based on production and sales figures from Government and private industry.

cities would have to contain 2.7 percent oxygen by weight for a minimum of 4 months. Ethyl alcohol or ethyl tertiary butyl ether (ETBE) could be used to meet this requirement as well as MTBE. While the requirement could increase corn use, the total impact may be limited if gasoline blenders use MTBE. In fact, Amoco has already announced a reformulated gasoline with MTBE being sold in Washington, D.C. which meets the future requirements of the Clean Air Act.

Legislation included in the Omnibus Budget Reconciliation Act of 1990 also contains provisions related to potential corn use. The legislation extends the Section 40 blender tax credit from January 1, 1991 through December 31, 2000 but at a rate of 54 cents per gallon of ethanol rather than the current 60 cents for eligible ethanol and ETBE. Tax credit for small producers of 10 cents per gallon of fuel ethanol for up to 15 million gallons applies to facilities controlled by one person and having an aggregate capacity of less than 30 million gallons per year. This credit begins in the producer's first taxable year after December 31, 1990. Also, the legislation sets the excise tax exemption at 5.4 cents per gallon for gasoline blended with 10 percent ethanol beginning December 1, 1990 and effective through September 30, 2000.

Manufacture of dry-milled products and alcohol in 1990/91 is expected to total about the same as in 1989/90. Higher taxes after January 1 on beverage alcohol likely will curb demand slightly and limit growth in corn use. However, ethanol production is expected to increase as more dry-milled fuel alcohol plants have been reopened and planned expansion occurs. Corn use by the food industry is not expected to fall even if the economy slows in 1990/91. Some corn items used in the restaurant sector are likely to decline, but corn snacks and food items consumed at home are expected to increase.

## Transportation Update

### Update Overview

Trade and domestic consumption of total grains and soybeans for 1990/91 is now projected at 358.92 million metric tons, down very slightly from 1989/90. However, due to the nature of this year's demand for grain and oilseeds, use of rail and barge carriers is likely to be significantly less than in the last year.

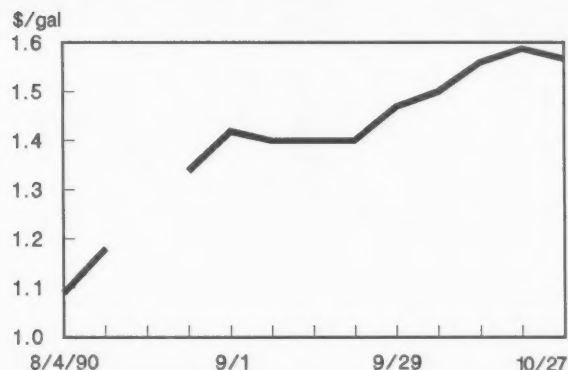
Corn exports are projected at 14 percent below 1989/90. About one-third of all interstate corn shipments normally move by barge, much of this to export points on the Mississippi River. A substantial volume is also railed to Pacific Northwest ports for export. The slackening in corn exports is expected to lower the demand for long-haul rail and barge service more than would a similar reduction in domestic consumption. Similarly, wheat exports are forecast down nearly 13 percent from last year. Rail shipments to the Texas gulf ports are already running 300 cars per week below September-October 1989.

Domestic consumption of total grains and soybeans is forecast to be up 6 percent, but will primarily increase demand for truck transportation. Domestic corn and wheat use are expected to increase 5 percent and 29 percent, respectively from 1989/90 and are likely to be achieved through increased livestock and poultry feeding at points near grain production sites. This grain will move by truck.

At the same time, rising diesel fuel prices and anticipated low water conditions on the Missouri and lower Mississippi Rivers virtually assure some rate increases from 1989/90 levels for all three modes of transport.



Figure 6

**Average Diesel Fuel Price**

Data not available for week ending Aug. 18.  
Source: Interstate Commerce Commission.

**Fuel Prices on the Rise**

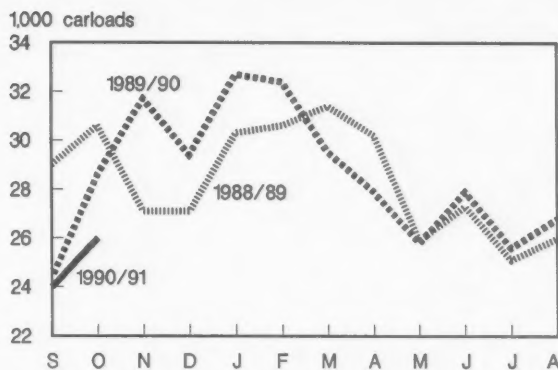
On July 30, 1990, the Interstate Commerce Commission reported an average diesel fuel price of \$1.09 per gallon. By the end of August, the Middle East crisis had resulted in a 30-percent increase to \$1.42 per gallon. Diesel prices peaked in the week ending October 20, averaging \$1.59 per gallon, nearly 50 cents above the July price. Since then diesel prices have declined somewhat, averaging \$1.52 per gallon for the week ending November 17, 1990. Unless additional interruptions in petroleum shipments are encountered, it is likely that the peak price has been achieved, but diesel prices are not expected to return to August 1990 levels within the crop year.

Truck operating costs in August, mostly resulting from increased fuel costs, rose 5 percent from the prior month to \$1.34 per mile. Rising fuel costs continued to drive total operating costs up in September and October. Fuel now accounts for 23 percent of total costs, up from 21 percent in August. Total costs in October were nearly \$1.38 per mile. The cost of moving grain from farm to first market has sharply increased over October 1989 when truck operating costs averaged \$1.24 per mile.

**Rail Situation****Rail Volume Down**

Rail shipments of grain in September 1990 fell more than 10 percent from August to 23,984 cars per week, 2 percent below shipments a year ago. Volume increased seasonally in October to 27,135 cars per week, but still was 6 percent below the same month of 1989. Rail shipments this year are expected to remain below 1989/90 levels.

Figure 7

**Railcar Loadings of Grain and Soybeans**

Weekly average.  
Source: Association of American Railroads.

Some of the reduction in rail shipments stems from the ready availability of storage space. On September 1, 1990, total U.S. grain and soybean stocks were estimated to be almost 6 million metric tons smaller than at the same time in 1989. Moreover, the delayed corn harvest saw stocks further reduced before corn started to move out of the fields. Even as harvest peaked, farmers generally found adequate storage space nearby, and elevator operators did not need to reposition large quantities of old-crop corn to make room for the new crop.

At mid-October, the Office of Transportation announced that no significant car supply problems existed. Barring a surge in exports, sufficient rail cars are expected to be available for the foreseeable future.

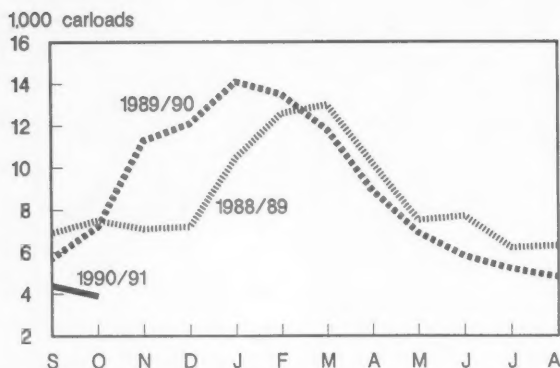
Contributing to the decline in rail volume, shipments to export points in September/October have been well below those of the same months of 1989, averaging 4,270 cars per week, down 66 percent. The 31-percent reduction in railed grain to Pacific coast ports is particularly significant. During September-October 1989, these ports averaged 3,650 cars per week. For the same months of 1990, only 2,513 cars were unloaded each week. As shipments to these ports tend to be long hauls, their recently experienced reductions add disproportionately to rail car availability.

**Rates Up Slightly**

Rail rates' response to increased fuel costs have been nominal. The Bureau of Labor Statistics' rate index for grain rose less than 0.8 percent from August to October 1990, about the same increase as in 1989.

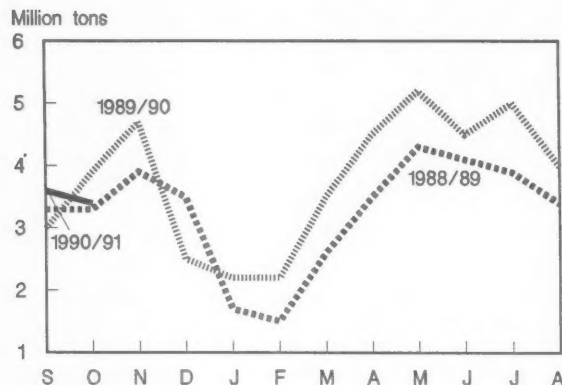
Minimum acceptable bids offered by the Burlington Northern Railroad for corn shipments under its Certificate of Transportation Program (COT) show slightly larger increases. Minimum bid prices for 54-car-unit trains for Jan-

Figure 8  
**Railcar Grain Unloadings**



Weekly average, Atlantic, Gulf, and Pacific ports.  
Source: Association of American Railroads.

Figure 10  
**Average Monthly Shipments of Grain**

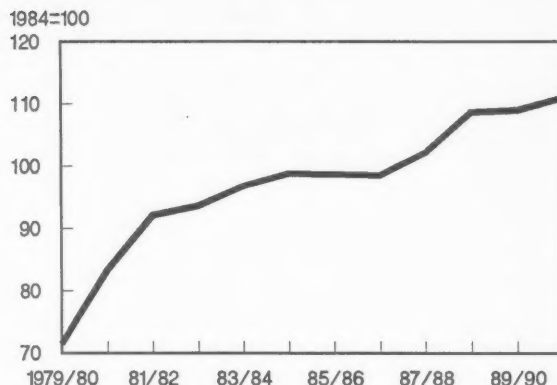


Mississippi River and Illinois waterway.

January 1991 delivery in the Sioux City, Iowa to Pacific Northwest points corridor rose 4.8 percent between August 6 and October 22, 1990 to \$2,590 per car, the largest increase. Unit train prices for the Sioux City to Mobile, Alabama corridor for January delivery rose 2.2 percent to \$1,788 per car in the same time period. These rates remained unchanged through mid-November.

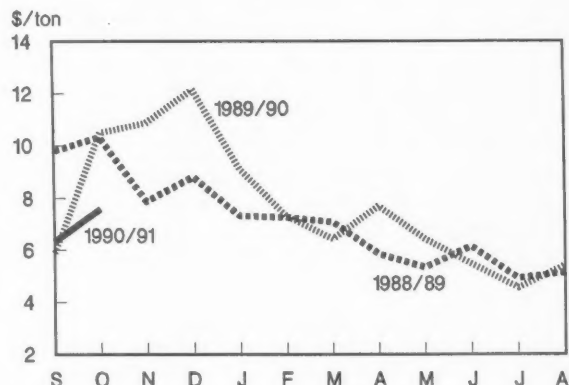
Single-car prices for January 1991 delivery in the Sioux City to Oregon or Washington points and the Lincoln, Nebraska to Kansas City corridors, rose 2.2 and 3.6 percent respectively between August 9 and October 18. For these two corridors, minimum prices were \$3,650 and \$860 per car on October 18 and remained unchanged through mid-November. Increases in COT rates did not take place until the first week of October, and in some weeks discounts have been offered for cars to be delivered in March 1991.

Figure 9  
**Rail Rate Index for Grain Shipments**



Source: Bureau of Labor Statistics, U.S. Dept. of Labor.

Figure 11  
**Barge Rates to New Orleans**



Originating from Peoria, Ill.

### Barge Situation

Barge shipments of grain and soybeans on the Illinois and Mississippi River system in September fell 10 percent from August to 3.6 million tons. This reflects an 8.6-percent reduction in grain exports, as measured by inspections for export, at the U.S. Gulf in the same period. The decline was especially sharp for corn and sorghum, which fell 22 and 26 percent. Volume decreased further in October to 3.4 million tons. The surge in corn exports through the gulf in November 1989, 41 percent above October, is not expected to recur this year. So unless there is a surge in Soviet imports, barge shipments are expected to continue at about current levels through the winter months.

### Barge Rates on the Rise

Barge rates for grain have risen steadily since July 1990, the low month of 1989/90. In October, rates from Peoria, Illi-

nois to New Orleans were 62 percent above July, averaging \$7.38 per ton. Rates from St. Louis in October averaged \$5.57 per ton, up 73 percent. These increases are partly due to increased costs of diesel fuel. Competitive pressures, however, have restrained their rise. Rates in October 1990 from Peoria and St. Louis were 30 and 29 percent below the same month of 1989. Competition is expected to hold down rate increases throughout 1990/91.

#### Low Water on the Missouri

Four straight years of below-normal precipitation in the northern portion of the Missouri River watershed have caused the U.S. Corps of Engineers to reduce water releases from the reservoirs that control the Missouri River's flow. During the navigation season ending October 31, 1990, the Corps released enough water to maintain a 7.5-foot channel depth, in contrast to the 9-foot project depth. Unless reservoirs are refilled before April 1991, the Corps plans again to curtail the navigation season sharply. Before 1988, the season was April through November. More recently the season has begun a week late and run through the end of October.

Navigation on the upper reaches of the river was impaired throughout the summers of 1989 and 1990. In November 1989, water levels at the Sioux City flood gauge averaged 10.3 feet, down 37 percent from October. Rainfall that month between Sioux City and Kansas City was sufficient to raise levels at Kansas City 60 percent to 9 feet.

This year, water levels in October at Sioux City averaged 16.1 feet, about 2 percent below last year. On the last day of October, the water level fell nearly 4 feet from the previous week to 13.3 feet as the outflow from reservoirs was reduced. In the first week of November the level fell another 2.6 feet. Unless rainfall makes up the difference, navigation

conditions on the Missouri are expected to deteriorate more rapidly than in 1989.

For 1987, the last year of a normal navigation season, grain shipments on the Missouri totaled 675,000 tons, about 1 percent of the total carried by the Mississippi River and its tributaries. Ending of the Missouri's navigation season will not significantly impact the national grain distribution system, but shippers in its basin will be subjected to the higher transportation costs of rail and truck carriers.

#### Mississippi Conditions To Improve Despite Low Water

The Missouri River normally accounts for 40 to 50 percent of the water flow in the Mississippi below St. Louis. The Corps of Engineers plans to reduce the input to the Missouri to 10,000 from 30,000 cubic feet per second until April 1991. This reduction is estimated to cause a 3-foot drop in water levels below St. Louis. Navigation on the lower Mississippi is expected to be impaired again, but less dramatically than in 1988 and 1989. Last year at St. Louis the river fell to minus 4.7 feet at the flood gauge in mid-December, the low mark of the year. On that date, Memphis, Tennessee and Baton Rouge, Louisiana also experienced record lows for the year. The Corps' goal for most navigable streams is to maintain 9-foot-deep channels throughout the navigation season.

While low water conditions are likely to recur during the winter months, navigation conditions this winter on the Mississippi are expected to be better than last year. Also, unless an export surge develops, grain shipments this winter are expected to be below 1989/90 levels. The barge traffic jams of 1989/90 are not expected for the 1990/91 crop year.

Figure 12

#### River Stages at Sioux City

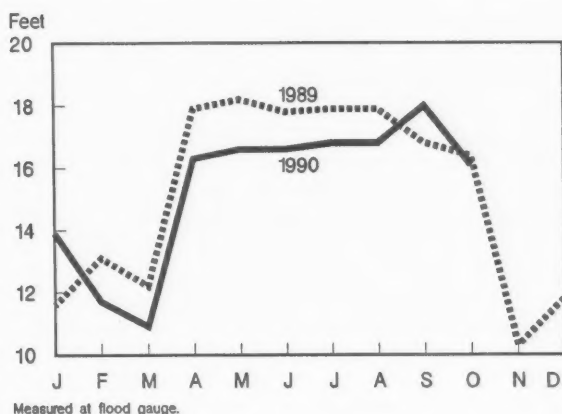
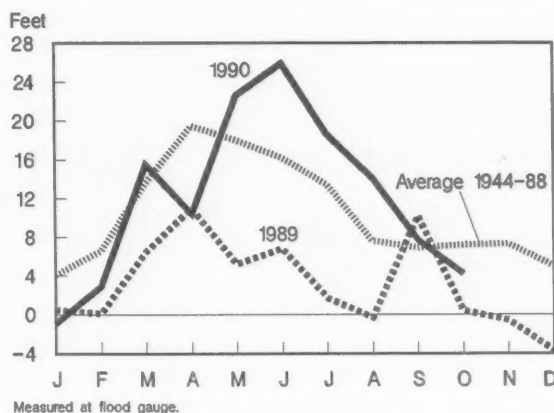


Figure 13

#### River Stages at St. Louis



## World Coarse Grain Outlook

World production of coarse grains is forecast to rise 2.5 percent in 1990/91 to 820 million tons, the highest in 4 years. The largest increases are forecast in the Soviet Union, the United States, and China. No growth in world consumption is expected, with the forecast 825 million tons about equal to 1989/90. However, production will still trail use, leading to another reduction in world stocks.

While the stock drawdown is likely to be small relative to recent years, the forecast stocks-to-use ratio of 14 percent for 1990/91 will be the lowest since 1973/74. In 1989/90, the ratio was estimated at 14.6 percent. Despite tight supplies of coarse grains, world wheat supplies are plentiful and world stocks of total grains are projected up for the first time since 1986/87. A sharp reduction in coarse grain trade is expected in 1990/91, because of some substitution of wheat for coarse grains and bigger crops in many importing countries.<sup>1</sup>

### **Foreign Production Up, But Consumption To Slip**

Foreign output of coarse grains is forecast up 2 percent to a record 590 million tons and includes a record barley crop. The Soviet Union and China account for much of the foreign production gains, with significant increases also taking place in Canada, Other Western Europe, Turkey, and Mexico. Crops in Argentina and Brazil are also projected to rise in 1990/91. However, planting of most Southern Hemisphere crops is still underway and conditions could change in these countries.

Although much of the Northern Hemisphere experienced favorable growing seasons, prolonged dry conditions covered a wide swath of Southern Europe, cutting production of spring-planted crops. Coarse grain output in Eastern Europe is forecast down 10 percent, with most of the reduction in corn. European Community (EC) coarse grain production is forecast down 7 percent, with the biggest losses also occurring in corn, mainly in France.

For the first time in 5 years, foreign coarse grain consumption is forecast to fall slightly. Developments in Europe explain much of the likely decline in 1990/91. In the EC, where use has already been trending downward since the late 1970's, the projected consumption drop in 1990/91 reflects both lower coarse grain output and a bumper wheat harvest. EC feeding of wheat is expected to jump 10 percent to the highest level since 1985/86.

The most precipitous single change will occur in East Germany (which will temporarily remain included in USDA's Eastern Europe regional data). As a result of the unifica-

tion with West Germany and adoption of EC agricultural policies, East Germany's coarse grain use is forecast to nose-dive 40 percent—a 5-million-ton reduction—despite a bumper harvest. This will not be made up by higher feeding of wheat, also projected to plunge about 40 percent. It stems from a sharp contraction in the livestock sector and increased purchases of protein meal and mixed feeds from West Germany in place of grains.

Significant consumption declines are also forecast for Yugoslavia and Bulgaria, largely reflecting shortfalls in domestic production. A larger wheat harvest will allow Yugoslavia to offset part of this drop by boosting wheat feeding.

### **Global Trade Expected To Fall**

In 1990/91, world trade in coarse grains is forecast to decline nearly 10 million tons to 91 million from the unusually strong volume of 1989/90. The anticipated contraction in trade stems largely from a projected drop of one-third in Soviet imports—amounting to nearly 8 million tons. This reduction will not be outweighed by purchases by other countries, whose aggregate imports are projected to fall slightly.

Soviet production of total grains is forecast at 235 million tons, an increase of 11 percent from 1989/90, and second only to 237 million tons in 1978/79. Coarse grain output is likely to increase about 9 percent to a near-record 114 million tons, despite some problems with the corn crop. State grain procurements are up over last year, but remain well below targets. Serious harvest, storage, and marketing losses continue, and may even increase with this year's large crop. There are indications that these chronic problems have worsened this year. These factors suggest continued large import needs, but economic and financial problems are apparently limiting import purchases.

The USSR has expressed strong interest in buying grain on credit. Both France and Canada have reportedly extended credit recently for purchases of wheat and barley. The President has stated that the United States will not grant most favored nation status to the USSR (and thus eligibility for credit) until changes are made in Soviet emigration policies. Even if this occurs, the question of creditworthiness would then have to be examined before credit is offered.

Although current export prices for corn are similar to levels a year earlier, importers are buying at a much slower pace. In the case of South Korea, this is partly because of higher purchases of wheat for feeding. Plentiful world supplies have led to a steep fall in wheat prices, and large export subsidies have further pushed down export prices, even though large amounts of feed-quality wheat (low quality or damaged and unsuitable for milling) are not available.

<sup>1</sup> All trade years referred to in this section are October-September and exclude intra-EC trade unless otherwise specified.

Table 4--World coarse grain trade: Major exporters  
and importers by commodity, 1986/87-1990/91 1/

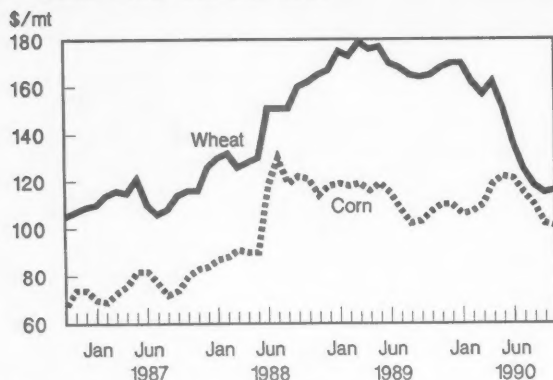
Item	1986/87	1987/88	1988/89	1989/90 2/	1990/91 3/
Million metric tons					
<b>CORN</b>					
Exporters:					
U.S.	39.4	44.5	51.3	60.0	51.8
Argentina	4.0	3.7	2.5	3.1	3.5
China	3.8	4.1	3.7	3.2	5.0
Thailand	2.6	0.7	1.4	1.4	0.8
South Africa	2.6	0.6	2.0	3.0	1.5
Others	4.3	3.1	2.8	2.9	1.6
Total	56.6	56.7	63.8	73.5	64.1
Importers:					
Japan	16.1	16.7	15.9	16.2	16.0
USSR	7.6	7.9	17.9	17.9	11.5
EC-12	2.9	3.7	2.4	3.3	4.0
Korea, Rep.	4.6	5.0	5.7	6.3	6.5
Taiwan	3.5	4.2	4.2	5.2	4.6
Mexico	3.4	3.2	3.2	5.0	4.5
China	1.6	0.2	0.0	0.5	0.0
East Europe	1.7	2.2	2.4	3.4	2.6
Brazil	1.4	0.0	0.2	0.4	0.9
Egypt	2.4	1.4	1.2	1.3	1.4
Others	11.4	12.2	10.7	14.0	12.1
Total	56.6	56.7	63.8	73.5	64.1
<b>SORGHUM</b>					
Exporters:					
U.S.	5.1	6.1	8.1	7.6	6.0
Argentina	1.0	1.2	0.7	1.2	1.0
Australia	0.6	0.6	0.3	0.1	0.3
Others	1.1	0.5	1.7	0.4	0.4
Total	7.8	8.3	10.8	9.3	7.8
Importers:					
Japan	4.2	3.9	4.1	3.9	3.4
Mexico	0.8	0.9	2.3	3.4	2.5
Taiwan	0.8	0.3	0.1	0.0	0.2
Venezuela	0.8	1.7	1.0	0.0	0.1
Israel	0.2	0.4	0.4	0.4	0.3
USSR	0.1	0.0	1.2	0.3	0.4
Others	0.9	1.1	1.7	1.3	0.9
Total	7.8	8.3	10.8	9.3	7.8
<b>BARLEY</b>					
Exporters:					
EC-12	6.2	7.0	9.0	6.6	7.0
Canada	6.0	3.5	3.4	3.8	4.0
Australia	2.2	1.6	1.4	2.5	1.2
U.S.	3.0	2.9	1.7	2.0	2.0
Others	1.2	1.1	1.4	0.5	2.0
Total	18.6	16.1	16.9	15.5	16.2
Importers:					
Saudi Arabia	9.0	4.8	4.6	3.6	4.0
USSR	3.0	2.3	3.2	4.0	2.5
East Europe	1.3	1.6	2.2	1.3	1.5
Japan	1.2	1.3	1.3	1.4	1.2
Others	4.1	6.1	5.6	5.2	7.0
Total	18.6	16.1	16.9	15.5	16.2
<b>COARSE GRAINS</b>					
Total trade	83.7	83.2	94.5	100.6	91.0

1/ October-September year, excludes intra-EC trade. Totals  
may not add because of rounding. 2/ Preliminary. 3/ Forecast.



Figure 14

### U.S. Corn and Wheat Export Prices, October 1986–October 1990



F.O.B. Gulf. Wheat is #2 HRW; corn is #2 yellow.

In October, South Korea bought wheat for feed at prices reportedly as much as \$25 per ton less than corn. Despite competitive prices, there is little indication that the other importers expected to buy wheat for feed—mainly the USSR and Eastern Europe—have made any purchases. Severe financial problems may account for this.

Despite a steep fall in Eastern Europe's domestic production, major financial constraints are also expected to limit the region's imports of coarse grains, especially corn. Also contributing to Eastern Europe's slow imports of both wheat and coarse grains is the dramatic reduction in the demand for feed grains in East Germany.

#### U.S. Sales and Market Share To Shrink

Coarse grain exports by the United States are likely to mirror the decline in world coarse grain trade. U.S. shipments are forecast to decrease about 10 million tons to 59.8 million in 1990/91, mostly because of lower corn exports. However, competitor corn shipments are also projected to slip, and the U.S. share of the corn market will show little change.

Aggregate competitor coarse grain exports are forecast about equal to 1989/90, implying that U.S. market share will slip to 66 percent. In 1989/90, U.S. market share for coarse grains reached an estimated 69 percent, second only to 1979/80.

A number of changes are projected among the competing coarse grain exporters, but these are largely offsetting. The biggest year-to-year gain is expected in China's corn exports, followed by smaller gains for Argentina's corn and Canada's barley exports. A small increase in EC barley exports is forecast, but this is likely to be more than outweighed by a substantial fall in EC corn exports because of a sharply lower crop in France. Lower production is also expected to reduce corn exports by South Africa and Thai-

Figure 15

### China Corn Trade, 1970–90

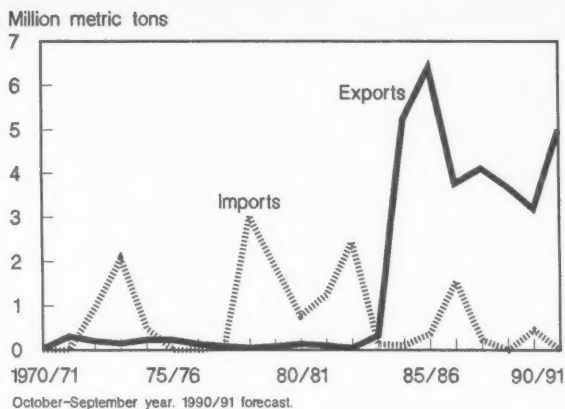
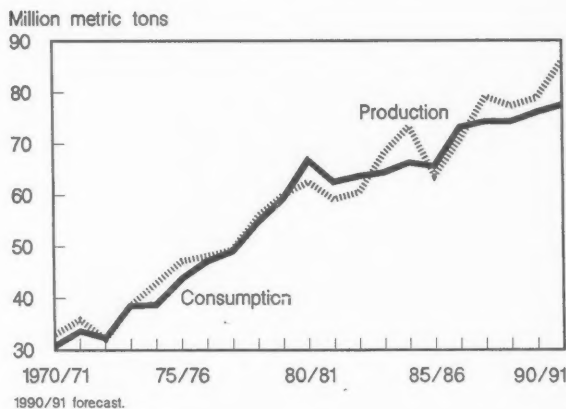


Figure 16

### China Corn: Production and Use, 1970–90



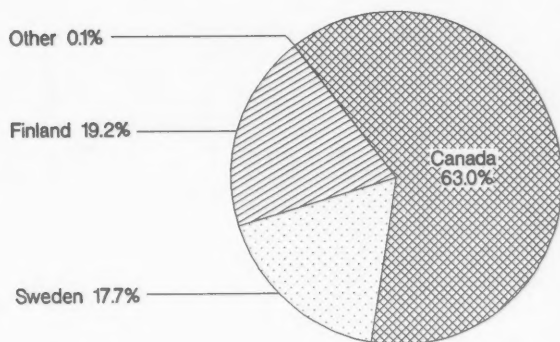
land. A combination of higher domestic use and a decline in production is predicted to trim Australia's barley shipments.

U.S. sorghum exports are projected to fall because of tighter supplies and prices higher relative to corn than last year. Imports by Mexico, which were up significantly in 1989/90, are also expected to be trimmed due to a major increase in its carryover stocks. U.S. barley exports are forecast equal to 1989/90, supported by large sales to Saudi Arabia under the Export Enhancement Program.

#### China's Corn Exports To Rise

China's 1990/91 corn crop is forecast at a record 86 million tons, up 7 million from 1989/90. This reflects increases in both area and yield, with the latter reaching a record. The high yield is explained by very favorable growing conditions and improved input supplies, including high-yielding hybrid

Figure 17

**U.S. Oat Imports by Supplier, 1989/90**

June-May crop year.

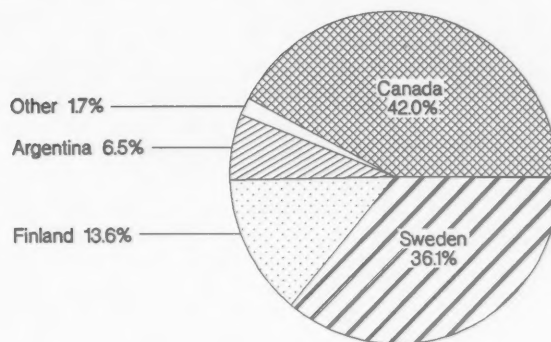
seeds. China's wheat and rice crops are also forecast at record highs in 1990/91.

Exports of corn by China are forecast to rise by more than 50 percent to 5 million tons in 1990/91, the highest in 5 years. This portends sharp competition with U.S. exports in Asian markets, particularly Japan and South Korea. In recent weeks, China has reportedly been selling corn at about \$5 per ton lower than U.S. corn. Despite the large crop and critical need for foreign exchange, the export policy of the central Government is far from certain. In past years, exports have sometimes been restricted below potential, probably to assure domestic supplies. Although China's feed use has been growing rapidly, this year's supply should outstrip domestic demand.

**Exporter Oat Supplies Abundant**

The combined production in 1990/91 of the major oat exporters—Canada, Finland, and Sweden—is forecast to be the highest since the mid-1970's. Since domestic consumption in each of these countries has declined considerably, they will have large supplies available for export. Excellent weather largely explains the bumper harvests, as area was down from the previous year in Sweden and Canada and about equal in Finland. Despite low prices in the United States, this country will again be the principal market for each of these suppliers, and easily the world's largest importer.

Figure 18

**Average U.S. Oat Imports by Supplier, 1983-89**

June-May crop year.

U.S. oat imports in 1989/90 (June-May) rose to nearly 1.1 million tons, the highest level of the 1980's. This occurred even with a sharp increase in U.S. oat production and a steep drop in prices. Canada was the leading supplier, as it has been in most years since the U.S. import boom started in 1983/84. In 1990/91, more competition is expected from Scandinavia because of this year's large crops.

Sweden has been wrestling with the problem of surplus grain production for a number of years. Because of high domestic price supports, Sweden must subsidize its exports. Its main attempt at controlling output so far has been to reduce area through fallow programs. In 1990/91, oats area was the lowest on record, but this was more than offset by higher yields, and Swedish production is estimated up 11 percent. More stringent policy measures have recently been announced, however. The current market regulation system is to be eliminated in mid-1991, ending the mechanism for subsidies as Sweden moves toward a free market in agriculture, and presumably lower exports of oats and other grains.

Finland also must subsidize its exports, but its attempts to reduce exportable surpluses appear less advanced than Sweden's. For 1991, Finland is proposing a set-aside program that would cover at least 15 percent of grain area. Canada removed oats from the jurisdiction of the Canadian Wheat Board in August 1989, privatizing the trade, but exports have continued large. This may reflect very low costs of production that permit exports even at the low prices of recent months.

## Quarterly Estimates of Supply and Use

by  
Allen J. Baker\*

**Abstract:** The resumption of quarterly stock estimates for oats and sorghum on March 1 this year allows quarterly supply and use (S&D) estimates to be reinstated for these grains. The quarterly S&D reports will include the months of June-August, September-November, December-February, and March-May. However, for quarterly S&D's to be useful for market analysis, historical series are needed. Only annual S&D's are available for years 1985/86-1989/90, and for the years prior to 1985/86 the quarterly S&D's were on a June-September, October-December, January-March, and April-May basis. The estimates provided here fill in the gap from 1985 to present and for the crop years 1975/76-1985/86 place the S&D estimates on the same quarterly basis as the current estimates. Similar changes were made for corn in August 1986 and for barley in February 1990. Consistent S&D estimates for all four feed grains from 1975/76 to the present are now available.

**Keywords:** Grains stocks estimates, oats, sorghum, supply, disappearance

For many analyses, comparable data for all four feed grains are needed on a quarterly basis. Particularly, the feed and residual disappearance on a "feed year" basis (September-August), is needed to compare with the number of grain-consuming animal units. Estimates of supply and use combine stock with flow data to summarize commodity information. Usually, this is a straightforward procedure of taking supplies at a point in time—stocks—and adding imports and production to arrive at supplies during the period. Use is supply less ending stocks.

In March 1986, two important changes were made in the stock estimates because of action taken by Congress and the National Agricultural Statistics Service (NASS): 1) The Food Security Act of 1985 (signed into law in late December 1985) mandated a change in the marketing year for corn and sorghum from October 1-September 30 to September 1-August 31. 2) NASS moved the fall grain stocks survey from October 1 to September 1 for corn and sorghum. Further adjustments in the collection of stocks was made by NASS because of reduced funding for fiscal 1986. Stock estimates for barley and oats were eliminated except for the carryover date of June 1, and sorghum stocks were only collected on June 1 and September 1. Quarterly stocks were maintained for corn, but the stock dates were changed from the first of October, January, April, and June to September 1, December 1, March 1, and June 1. Stock estimates for barley were restored to a quarterly basis beginning in September 1988, and for oats and sorghum in March 1990.

Quarterly estimates for barley supplies and use were published in the February 1990 *Feed Situation and Outlook Yearbook*, FdS-313. Other changes, which were not related

to new stock data becoming available, were made at the same time. All the supply and use tables for each of the feed grains were shifted to only grain for the imports and exports, from grain equivalent of grain and products. Previously, some food and industrial products had been included in the trade data; however, inclusion of these products resulted in some double counting because they were included in food and industrial use as well as trade.

In addition, the "new" supply and use estimates incorporated the final estimates of stocks for 1984-88 and production for 1983-87. These were released in December 1989 and were also incorporated into the supply and use tables.

The shift in 1986 in the marketing year and stock estimate dates meant that supply and use figures from 1986 on would not be compatible with the historical data. In the August 1986 *Feed Situation and Outlook*, FdS-300, David Hull and Lawrence Van Meir developed a consistent historical data base for corn and sorghum starting with 1975/76 and conforming to the new stock reporting dates.

Where monthly data were available, such as for foreign trade, adjustments to the new quarterly estimates were quite simple. Some other uses were estimated by interpolation, but feed use for corn was adjusted for an early harvest bias—new-crop corn fed in the old marketing year. Corn harvested before the beginning of the marketing year was treated in the October 1 stock estimates as if it were unavailable. When new-crop corn was harvested and used before the official start of the marketing year, summer supplies and disappearance were too large; i.e. an early harvest bias. Regression analysis was used to estimate the relationship between corn harvested before October 1 and the decline in feed and residual use during June-September. So for corn, the feed and residual use was adjusted to reflect early harvested corn fed

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in June-September before calculating a "new" September-November feed and residual disappearance.

While a similar bias may exist in sorghum, the authors did not adjust for this bias because regression estimates were so large that June-August feed use estimates appeared excessive and would have resulted in implied free stocks frequently being negative. The balance sheet for sorghum had two periods per year (September-May and June-August) to match the June 1 and September 1 stock estimates.

The new estimates of quarterly sorghum supply and demand use for 1975/76 - 1984/85, were interpolated from the historical balance sheets. Sorghum used for seed was computed for the March-May and June-August quarters, based on seeding rates and on plantings reported in the *Weekly Weather and Crop Bulletin*. Feed and residual use during the first three quarters of the year was based on interpolation from the daily rate of disappearance in the corresponding quarter in the former October 1-September 30 marketing year. Beginning in 1985/86, feed and residual use was estimated using the average seasonal use in 1975/76 through 1984/85.

During 1975/76 through 1984/85, there was a gradual shift to increased food and industrial (FI) use of sorghum in the first and second quarters of the marketing year. As a result, the quarterly estimated FI use was based on the average for 1980/81 through 1984/85.

Unlike corn and sorghum, the marketing year for oats has remained June through May throughout the 1975-to-present period. Thus while the marketing year supply and use remain the same, the quarters shifted. Monthly trade data for oats grain were used to adjust to the new quarters. Seed use by quarter was estimated based on "usual" planting dates and the reported seeding rate for oats to be harvested for grain. Only 60 percent of the seeding rate was counted for oats estimated to be planted as a conserving use on land idled by Government crop programs.

Food and industrial use plus feed and residual use were estimated by interpolating the quarterly numbers reported in 1975/76 through 1984/85. In 1985/86 to March 1990, an average of recent years' seasonal patterns was used to allocate the annual total among the quarters.

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**ERS**

Employment up  
as long shift ends  
Unemployment down  
Manufacturing jobs  
and rural economy  
Manufacturing jobs  
still dropping in  
mid-1980s but  
growing in 1980s  
Rural earnings per  
job down slightly  
Rural population  
growth continues  
grows slightly



Table A-1--Sorghum: Marketing year supply and disappearance, 1975/76-1989/90

Year beginning September 1	Supply				Domestic	
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Seed
Million						
1975/76:						
Sept.-Nov.	65.3	754.4	0.0	819.7	2.1	0.0
Dec.-Feb.	584.1	---	0.0	584.1	2.2	0.0
Mar.-May	323.1	---	0.0	323.1	2.6	1.6
June-Aug.	154.0	---	0.0	154.0	1.9	0.7
Mkt. year	65.3	754.4	0.0	819.7	8.8	2.3
1976/77:						
Sept.-Nov.	82.3	710.8	0.0	793.1	2.1	0.0
Dec.-Feb.	589.7	---	0.0	589.7	2.2	0.0
Mar.-May	361.2	---	0.0	361.2	2.6	1.4
June-Aug.	195.7	---	0.0	195.7	1.9	0.6
Mkt. year	82.3	710.8	0.0	793.1	8.7	2.0
1977/78:						
Sept.-Nov.	117.3	780.9	0.0	898.2	2.1	0.0
Dec.-Feb.	713.9	---	0.0	713.9	2.2	0.0
Mar.-May	483.7	---	0.0	483.7	2.8	1.4
June-Aug.	319.1	---	0.0	319.1	2.3	0.6
Mkt. year	117.3	780.9	0.0	898.2	9.4	2.0
1978/79:						
Sept.-Nov.	216.4	731.3	0.0	947.7	2.3	0.0
Dec.-Feb.	736.2	---	0.0	736.2	2.5	0.0
Mar.-May	491.5	---	0.0	491.5	2.8	1.3
June-Aug.	322.2	---	0.0	322.2	2.3	0.5
Mkt. year	216.4	731.3	0.0	947.7	10.0	1.8
1979/80:						
Sept.-Nov.	207.9	807.4	0.0	1,015.3	2.6	0.0
Dec.-Feb.	756.1	---	0.0	756.1	2.7	0.0
Mar.-May	476.4	---	0.0	476.4	3.0	1.4
June-Aug.	277.6	---	0.0	277.6	2.1	0.6
Mkt. year	207.9	807.4	0.0	1,015.3	10.4	2.0

See footnotes at end of table.



Domestic use Feed and residual	Disappearance		Exports	Total disap- pearance	Govt. owned	Ending stocks	
	Total					Privately owned 1/	Total
million bushels							
0	1.7						
0	167.3	169.4	66.2	235.6	0.0	584.1	584.1
6	186.6	188.8	72.2	261.0	0.0	323.1	323.1
7	123.5	127.7	41.4	169.1	0.0	154.0	154.0
	16.7	19.3	52.4	71.7	0.0	82.3	82.3
3	494.1	505.2	232.2	737.4	0.0	82.3	82.3
0	143.3	145.3	62.1	207.4	0.0	585.7	585.7
0	141.6	143.8	80.7	224.5	0.0	361.2	361.2
4	100.1	104.0	61.5	165.5	0.3	195.4	195.7
6	26.2	28.7	49.7	78.4	0.2	117.1	117.3
0	411.1	421.8	254.0	675.8	0.2	117.1	117.3
0	139.3	141.4	42.9	184.3	0.0	713.9	713.9
0	153.7	155.9	74.3	230.2	0.2	483.5	483.7
4	100.7	104.9	59.7	164.6	0.3	318.8	319.1
6	53.8	56.7	46.0	102.7	5.0	211.4	216.4
0	447.5	458.9	222.9	681.8	5.0	211.4	216.4
0	173.9	176.2	35.3	211.5	28.9	707.3	736.2
0	176.8	179.4	65.3	244.7	36.9	454.6	491.5
3	115.2	119.3	50.0	169.3	42.8	279.4	322.2
5	72.0	74.8	39.5	114.3	43.7	164.2	207.9
8	537.9	549.7	190.1	739.8	43.7	164.2	207.9
0	184.6	187.2	72.0	259.2	43.0	713.1	756.1
0	174.1	176.8	102.9	279.7	44.6	431.8	476.4
4	102.2	106.6	92.3	198.8	45.6	232.0	277.6
6	34.6	37.3	62.4	99.7	45.6	132.3	177.9
0	495.4	507.8	329.6	837.4	45.6	132.3	177.9

Continued--

Table A-1--Sorghum: Marketing year supply and disappearance, 1975/76-1989/90--Cont

Year beginning September 1	Supply				Disappearance	
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic Seed
						Million b
1980/81:						
Sept.-Nov.	177.9	579.3	0.0	757.2	2.4	0.0
Dec.-Feb.	548.6	---	0.0	548.6	2.5	0.0
Mar.-May	363.3	---	0.0	363.3	2.3	1.4
June-Aug.	184.5	---	0.0	184.5	1.9	0.6
Mkt. year	177.9	579.3	0.0	757.2	9.1	2.0
1981/82:						
Sept.-Nov.	130.3	875.8	0.0	1,006.1	2.2	0.0
Dec.-Feb.	792.4	---	0.0	792.4	2.5	0.0
Mar.-May	539.3	---	0.0	539.3	2.1	1.4
June-Aug.	379.5	---	0.0	379.5	2.0	0.6
Mkt. year	130.3	875.8	0.0	1,006.1	8.8	2.0
1982/83:						
Sept.-Nov.	318.6	835.1	0.0	1,153.7	2.1	0.0
Dec.-Feb.	925.5	---	0.0	925.5	2.2	0.0
Mar.-May	684.6	---	0.0	684.6	1.7	0.9
June-Aug.	529.1	---	0.0	529.1	1.9	0.9
Mkt. year	318.6	835.1	0.0	1,153.7	7.9	1.8
1983/84:						
Sept.-Nov.	439.1	487.5	0.0	926.6	2.1	0.0
Dec.-Feb.	731.9	---	0.0	731.9	2.1	0.0
Mar.-May	532.1	---	0.0	532.1	1.5	1.1
June-Aug.	368.9	---	0.1	369.0	2.0	1.2
Mkt. year	439.1	487.5	0.1	926.7	7.7	2.3
1984/85:						
Sept.-Nov.	287.4	866.2	0.0	1,153.6	4.1	0.0
Dec.-Feb.	853.8	---	0.1	853.9	4.5	0.0
Mar.-May	560.7	---	0.0	560.7	3.8	1.5
June-Aug.	360.8	---	0.0	360.8	2.9	0.5
Mkt. year	287.4	866.2	0.1	1,153.7	15.3	2.0

See footnotes at end of table.

-Continued

Disappearance	Total	Exports	Total disappearance	Ending stocks		
				Govt. owned	Privately owned 1/	Total
stic use Feed and residual						
ion bushels						
138.8	141.2	67.4	208.6	42.7	505.9	548.6
106.7	109.2	76.1	185.3	43.7	319.6	363.3
107.1	110.8	68.0	178.8	43.8	140.7	184.5
(29.9)	(27.4)	81.6	54.2	41.5	88.8	130.3
322.7	333.8	293.1	626.9	41.5	88.8	130.3
133.5	135.7	78.0	213.7	38.3	754.1	792.4
170.8	173.3	79.8	253.1	38.4	500.9	539.3
109.2	112.7	47.1	159.8	38.3	341.2	379.5
3.5	6.1	54.8	60.9	41.8	276.8	318.6
417.0	427.8	259.7	687.5	41.8	276.8	318.6
168.1	170.2	58.0	228.2	45.5	880.0	925.5
166.4	168.5	72.4	240.9	48.2	636.4	684.6
119.1	121.7	33.8	155.5	54.0	475.1	529.1
41.3	44.1	45.9	90.0	171.5	267.6	439.1
494.8	504.5	210.1	714.6	171.5	267.6	439.1
125.1	127.2	67.5	194.7	190.4	541.5	731.9
126.1	128.2	71.6	199.8	61.4	470.7	532.1
105.3	107.9	55.3	163.2	78.0	290.9	368.9
28.2	31.4	50.2	81.6	102.8	184.6	287.4
384.7	394.7	244.6	639.3	102.8	184.6	287.4
209.9	214.0	85.8	299.8	93.1	760.7	853.8
201.4	205.9	87.3	293.2	105.2	455.5	560.7
130.9	136.2	63.7	199.9	111.1	249.7	360.8
(2.9)	0.5	60.1	60.6	112.1	188.1	300.2
539.3	556.6	296.9	853.5	112.1	188.1	300.2

Continued--

Table A-1--Sorghum: Marketing year supply and disappearance, 1975/76-1989/90

Year beginning September 1	Supply				Food, alcohol, and industrial	Domestic consumption See
	Begin- ning stocks	Produc- tion	Imports	Total		
1985/86:						
Sept.-Nov.	300.2	1,120.3	0.0	1,420.5	7.6	0.0
Dec.-Feb.	1,112.2	---	0.0	1,112.2	7.9	0.0
Mar.-May	828.4	---	0.0	828.4	6.6	1.2
June-Aug.	630.0	---	0.0	630.0	3.9	0.5
Mkt. year	300.2	1,120.3	0.0	1,420.5	26.0	1.7
1986/87:						
Sept.-Nov.	551.0	938.9	0.0	1,489.9	2.8	0.0
Dec.-Feb.	1,259.2	---	0.0	1,259.2	2.9	0.0
Mar.-May	1,017.7	---	0.0	1,017.7	2.4	1.0
June-Aug.	835.0	---	0.0	835.0	2.2	0.6
Mkt. year	551.0	938.9	0.0	1,489.9	10.4	1.6
1987/88:						
Sept.-Nov.	743.3	730.8	0.0	1,474.1	4.9	0.0
Dec.-Feb.	1,252.4	---	0.0	1,252.4	5.1	0.0
Mar.-May	1,011.1	---	0.0	1,011.1	4.2	0.8
June-Aug.	807.8	---	0.0	807.9	9.3	0.5
Mkt. year	743.3	730.8	0.0	1,474.1	23.5	1.3
1988/89:						
Sept.-Nov.	662.7	576.7	0.0	1,239.3	5.9	0.0
Dec.-Feb.	997.7	---	0.0	997.7	6.1	0.0
Mar.-May	725.1	---	0.0	725.1	5.0	0.8
June-Aug.	559.0	---	0.0	559.0	3.5	0.7
Mkt. year	662.7	576.7	0.0	1,239.3	20.5	1.5
1989/90:						
Sept.-Nov.	439.5	617.9	0.0	1,057.4	3.6	0.0
Dec.-Feb.	791.8	---	0.0	791.8	4.4	0.0
Mar.-May	513.6	---	0.1	513.7	2.5	0.6
June-Aug.	335.0	---	0.1	335.1	3.1	0.5
Mkt. year 2/	439.5	617.9	0.2	1,057.6	13.6	1.1

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary.

89/90--Continued

Disappearance					Ending stocks		
Domestic use							
Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Million bushels							
0.0	230.4	238.0	70.2	308.2	138.6	973.6	1,112.2
0.0	232.8	240.7	43.1	283.9	175.2	653.2	828.4
1.2	163.7	171.4	26.9	198.3	181.4	448.6	630.0
0.5	36.9	41.3	37.7	79.0	207.2	343.8	551.0
1.7	663.8	691.5	178.0	869.5	207.2	343.8	551.0
0.0	180.4	183.3	47.5	230.7	292.1	967.1	1,259.2
0.0	182.3	185.3	56.2	241.5	364.9	652.8	1,017.7
1.0	128.2	131.6	51.2	182.8	400.4	434.6	835.0
0.6	45.3	48.1	43.5	91.6	408.9	334.4	743.3
1.6	536.2	548.2	198.3	746.5	408.9	334.4	743.3
0.0	171.3	176.2	45.5	221.7	465.3	787.1	1,252.4
0.0	173.1	178.2	63.1	241.3	545.5	465.6	1,011.1
0.8	121.2	126.2	77.1	203.3	511.4	296.4	807.8
0.5	89.6	99.4	45.8	145.2	463.6	199.1	662.7
1.3	555.1	579.9	231.6	811.5	463.6	199.1	662.7
0.0	171.3	177.1	64.5	241.6	432.9	564.8	997.7
0.0	173.1	179.2	93.5	272.6	396.4	328.7	725.1
0.8	80.1	86.0	80.1	166.1	363.8	195.2	559.0
0.7	43.2	47.4	72.1	119.5	340.9	98.6	439.5
1.5	467.6	489.6	310.2	799.8	340.9	98.6	439.5
0.0	168.1	171.7	93.8	265.6	314.6	477.2	791.8
0.0	192.6	197.0	81.2	278.2	223.0	290.6	513.6
0.6	94.4	97.5	81.3	178.7	190.2	144.8	335.0
0.5	61.0	64.6	50.8	115.3	162.5	57.3	219.8
1.1	516.1	530.8	307.1	837.8	162.5	57.3	219.8

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Table A-2--Oats: Marketing year supply and disappearance, 1975/76-1989/90

Year beginning June 1	Supply				Food, alcohol, and industrial	Disappearance See
	Begin- ning stocks	Produc- tion	Imports	Total		
1975/76:						
June-Aug.	224.0	639.0	0.2	863.2	11.3	0.0
Sept.-Nov.	678.7	---	0.0	678.7	11.0	4.0
Dec.-Feb.	530.7	---	0.2	530.8	11.0	1.0
Mar.-May	377.5	---	0.1	377.6	10.7	34.0
Mkt. year	224.0	639.0	0.5	863.5	44.0	40.0
1976/77:						
June-Aug.	204.8	540.4	0.1	745.3	10.9	0.0
Sept.-Nov.	584.6	---	0.1	584.7	10.5	5.0
Dec.-Feb.	447.6	---	0.4	448.0	10.5	1.0
Mar.-May	312.9	---	0.8	313.7	10.6	37.0
Mkt. year	204.8	540.4	1.4	746.6	42.4	43.0
1977/78:						
June-Aug.	164.3	752.8	0.9	918.0	10.9	0.0
Sept.-Nov.	738.2	---	0.4	738.6	10.6	4.0
Dec.-Feb.	602.8	---	0.4	603.2	10.2	1.0
Mar.-May	473.4	---	0.3	473.7	10.3	33.0
Mkt. year	164.3	752.8	2.1	919.2	42.0	39.0
1978/79:						
June-Aug.	313.1	581.7	0.2	895.0	11.1	0.0
Sept.-Nov.	706.0	---	0.1	706.1	10.4	4.0
Dec.-Feb.	578.2	---	0.2	578.3	10.5	1.0
Mar.-May	440.0	---	0.2	440.2	9.0	28.0
Mkt. year	313.1	581.7	0.6	895.4	41.0	33.0
1979/80:						
June-Aug.	280.0	526.7	0.2	806.9	11.0	0.0
Sept.-Nov.	627.2	---	0.2	627.3	10.5	3.0
Dec.-Feb.	505.3	---	0.1	505.4	10.3	1.0
Mar.-May	387.7	---	0.2	387.9	8.9	27.0
Mkt. year	280.0	526.7	0.8	807.5	40.7	32.0

See footnotes at end of table.

90

Disappearance					Ending stocks		
Domestic use			Exports	Total disappearance	Govt. owned	Privately owned	Total
Seed	Feed and residual	Total					
Million bushels							
0.0	172.8	184.2	0.4	184.6	4.8	673.9	678.7
4.8	125.1	141.0	7.1	148.0	0.0	530.7	530.7
1.2	138.4	150.6	2.7	153.3	0.0	377.5	377.5
34.3	127.7	172.7	2.1	174.8	24.9	177.9	202.8
40.3	564.1	648.4	12.3	660.7	24.9	177.9	202.8
0.0	147.1	158.0	2.7	160.7	0.0	584.6	584.6
5.2	116.7	132.5	4.6	137.1	0.0	447.6	447.6
1.3	122.6	134.4	0.7	135.1	0.0	312.9	312.9
37.1	101.5	149.2	0.3	149.4	0.0	164.3	164.3
43.7	487.9	574.0	8.3	582.3	0.0	164.3	164.3
0.0	167.0	177.8	2.0	179.8	0.0	738.2	738.2
4.7	116.4	131.7	4.1	135.8	0.0	602.8	602.8
1.2	115.5	126.9	3.0	129.9	0.0	473.4	473.4
33.4	116.0	159.7	1.0	160.6	0.0	313.1	313.1
39.3	514.8	596.1	10.0	606.1	0.0	313.1	313.1
0.0	170.8	181.9	7.0	188.9	0.8	705.2	706.0
4.1	111.8	126.3	1.7	128.0	2.0	576.2	578.2
1.0	125.5	137.0	1.3	138.3	2.4	437.6	440.0
28.7	122.1	159.8	0.3	160.2	2.7	277.3	280.0
33.8	530.3	605.1	10.3	615.4	2.7	277.3	280.0
0.0	168.5	179.5	0.3	179.7	2.3	624.9	627.2
3.9	106.6	120.9	1.1	122.1	2.5	502.8	505.3
1.0	105.7	117.0	0.8	117.8	2.3	385.4	387.7
27.5	114.5	150.9	0.6	151.5	2.7	233.7	236.4
32.3	495.3	568.3	2.8	571.1	2.7	233.7	236.4

Continued--

Table A-2--Oats: Marketing year supply and disappearance, 1975/76-1989/90--Continued

Year beginning June 1	Supply				Disappearance	
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Domestic Seed
Million						
1980/81:						
June-Aug.	236.4	458.8	0.4	695.6	11.3	0.0
Sept.-Nov.	538.1	---	0.2	538.3	10.3	4.0
Dec.-Feb.	421.7	---	0.2	421.9	9.9	1.0
Mar.-May	305.6	---	0.3	305.9	9.4	28.1
Mkt. year	236.4	458.8	1.1	696.3	41.0	33.0
1981/82:						
June-Aug.	177.0	509.5	0.2	686.7	12.1	0.0
Sept.-Nov.	515.6	---	0.2	515.8	10.6	4.1
Dec.-Feb.	395.1	---	0.1	395.2	9.9	1.0
Mar.-May	282.9	---	0.9	283.8	8.6	29.1
Mkt. year	177.0	509.5	1.5	688.0	41.2	34.2
1982/83:						
June-Aug.	151.9	592.6	0.6	745.2	12.2	0.0
Sept.-Nov.	605.7	---	0.2	605.9	10.6	5.2
Dec.-Feb.	486.7	---	0.8	487.5	10.4	1.3
Mar.-May	367.6	---	2.0	369.5	8.5	36.8
Mkt. year	151.9	592.6	3.5	748.0	41.7	43.3
1983/84:						
June-Aug.	219.8	476.5	9.2	705.4	11.9	0.0
Sept.-Nov.	551.5	---	6.1	557.6	10.4	3.5
Dec.-Feb.	416.9	---	6.2	423.1	10.3	0.9
Mar.-May	303.5	---	8.4	311.9	8.3	25.1
Mkt. year	219.8	476.5	29.9	726.2	40.9	29.5
1984/85:						
June-Aug.	180.9	473.7	2.0	656.6	11.8	0.0
Sept.-Nov.	517.8	---	8.7	526.5	10.5	3.7
Dec.-Feb.	397.0	---	12.2	409.2	10.2	0.9
Mar.-May	296.3	---	10.8	307.1	8.5	26.5
Mkt. year	180.9	473.7	33.6	688.2	41.0	31.2

See footnotes at end of table.

Continued

	Disappearance			Exports	Total disappearance	Ending stocks		
	Domestic use Feed and residual	Total				Govt. owned	Privately owned	Total
million bushels								
0	144.7	156.0	1.5	157.6	2.2	535.9	538.1	
0	100.1	114.4	2.1	116.6	2.1	419.6	421.7	
0	103.3	114.2	2.1	116.3	1.9	303.7	305.6	
1	88.3	125.8	3.1	128.9	2.3	174.7	177.0	
0	436.5	510.5	8.8	519.3	2.3	174.7	177.0	
0	157.7	169.8	1.4	171.2	1.9	513.7	515.6	
1	105.3	120.0	0.7	120.7	1.9	393.2	395.1	
0	101.1	112.1	0.3	112.4	1.7	281.2	282.9	
1	93.9	131.6	0.3	131.9	0.7	151.2	151.9	
2	458.0	533.4	2.7	536.1	0.7	151.2	151.9	
0	127.1	139.3	0.2	139.5	0.5	605.2	605.7	
2	102.9	118.7	0.4	119.1	0.7	486.0	486.7	
3	108.1	119.8	0.1	119.9	0.7	366.9	367.6	
8	104.3	149.6	0.0	149.7	0.7	219.2	219.9	
3	442.4	527.4	0.8	528.2	0.7	219.2	219.9	
0	141.9	153.8	0.1	153.9	0.7	550.8	551.5	
5	126.2	140.2	0.5	140.7	1.4	415.5	416.9	
9	108.4	119.6	0.1	119.7	1.4	302.1	303.5	
1	97.5	130.8	0.2	131.1	1.5	179.3	180.8	
5	474.0	544.4	0.9	545.3	1.5	179.3	180.8	
0	126.9	138.7	0.1	138.8	1.4	516.4	517.8	
7	115.1	129.3	0.2	129.5	1.4	395.6	397.0	
9	101.6	112.8	0.1	112.9	1.4	294.9	296.3	
5	92.0	127.0	0.1	127.1	1.4	178.5	179.9	
2	435.6	507.8	0.5	508.3	1.4	178.5	179.9	

Continued--

Table A-2--Oats: Marketing year supply and disappearance, 1975/76-1989/90

Year beginning June 1	Supply				Food, alcohol, and industrial
	Begin- ning stocks	Produc- tion	Imports	Total	
1985/86:					
June-Aug.	179.9	518.5	4.4	702.9	12.8
Sept.-Nov.	554.1	---	4.2	558.3	11.2
Dec.-Feb.	424.8	---	8.9	433.7	10.9
Mar.-May	312.5	---	9.7	322.2	9.0
Mkt. year	179.9	518.5	27.2	725.7	44.0
1986/87:					
June-Aug.	183.7	385.0	8.7	577.4	13.1
Sept.-Nov.	451.6	---	4.8	456.4	11.5
Dec.-Feb.	342.2	---	9.2	351.4	11.1
Mar.-May	248.5	---	9.6	258.2	9.3
Mkt. year	183.7	385.0	32.4	601.1	45.0
1987/88:					
June-Aug.	132.7	373.7	7.0	513.4	14.5
Sept.-Nov.	393.9	---	8.1	402.0	12.7
Dec.-Feb.	294.2	---	15.8	310.0	12.3
Mar.-May	212.2	---	14.8	227.1	10.2
Mkt. year	132.7	373.7	45.7	552.1	49.8
1988/89:					
June-Aug.	112.0	217.6	12.3	341.8	21.2
Sept.-Nov.	263.8	---	11.9	275.7	18.6
Dec.-Feb.	204.4	---	20.1	224.5	18.0
Mar.-May	159.9	---	18.6	178.5	15.0
Mkt. year	112.0	217.6	62.9	392.5	72.7
1989/90:					
June-Aug.	98.3	373.6	17.0	488.9	26.6
Sept.-Nov.	373.3	---	17.5	390.8	23.3
Dec.-Feb.	287.2	---	22.3	309.5	22.6
Mar.-May	214.7	---	15.7	230.4	18.8
Mkt. year 1/	98.3	373.6	72.4	544.3	91.3

--- = Not applicable.

1/ Preliminary.



1989/90--Continued

Disappearance						Ending stocks		
Domestic use and l	Seed	Feed and residual	Total	Exports	Total disap- pearance			
						Govt. owned	Privately owned	Total
Million bushels								
0.0		135.8	148.7	0.1	148.8	1.5	552.6	554.1
3.9		118.1	133.2	0.3	133.5	1.9	422.9	424.8
1.0		109.3	121.2	0.1	121.2	2.0	310.5	312.5
27.6		101.0	137.7	0.8	138.4	1.9	181.8	183.7
32.5		464.2	540.7	1.2	541.9	1.9	181.8	183.7
0.0		112.5	125.6	0.2	125.9	2.4	449.2	451.6
4.6		97.8	113.9	0.3	114.2	3.2	339.0	342.2
1.1		90.5	102.8	0.1	102.9	3.6	244.9	248.5
32.3		83.7	125.2	0.3	125.5	3.5	129.2	132.7
38.0		384.5	467.5	0.9	468.4	3.5	129.2	132.7
0.0		104.8	119.3	0.2	119.5	3.3	390.6	393.9
3.8		91.1	107.6	0.1	107.8	3.4	290.8	294.2
0.9		84.3	97.6	0.1	97.7	3.4	208.8	212.2
26.9		77.9	115.0	0.1	115.1	3.5	108.5	112.0
31.6		358.2	439.6	0.5	440.1	3.5	108.5	112.0
0.0		56.7	77.9	0.2	78.1	3.0	260.8	263.8
3.3		49.3	71.1	0.1	71.3	2.5	201.9	204.4
0.8		45.6	64.4	0.2	64.6	2.6	157.3	159.9
23.0		42.2	80.1	0.1	80.2	2.4	95.9	98.3
27.1		193.8	293.6	0.6	294.2	2.4	95.9	98.3
0.0		88.7	115.4	0.2	115.6	1.3	372.0	373.3
2.8		77.1	103.3	0.3	103.5	1.2	286.0	287.2
0.7		71.4	94.7	0.2	94.8	1.1	213.6	214.7
19.7		34.8	73.3	0.2	73.5	0.7	156.2	156.9
23.2		272.1	386.6	0.8	387.4	0.7	156.2	156.9

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Appendix table 1--Feed grains: Marketing year supply and disappearance, and

Year 2/	Supply				Food, alcohol, and industrial
	Begin- ning stocks	Produc- tion	Imports	Total	
1984/85	39.6	236.8	0.7	277.1	31.4
1985/86	57.5	274.3	0.8	332.5	33.5
1986/87	126.4	251.6	0.7	378.7	34.2
1987/88	152.1	216.5	1.0	369.6	35.6
1988/89	133.6	149.3	1.2	284.2	36.5
1989/90 4/	65.9	221.1	1.4	288.4	37.5
1990/91 5/	45.5	230.1	1.2	276.9	---39.7-

	Area		
	Set-aside and diverted	Planted	Harvested for grain
	-----Million hectares-----		
1984/85	2.1	49.5	43.2
1985/86	2.9	51.8	45.2
1986/87	7.3	48.5	41.1
1987/88	12.5	43.1	35.2
1988/89	11.1	41.2	32.6
1989/90	6.8	42.9	36.9
1990/91	6.5	42.1	36.2

1/ Aggregated data on corn, sorghum, barley, and oats. 2/ The marketing year begins June 1. 3/ Includes total Government loans (original and resale). 4/ Deficiency payments. 5/ Deficiency and diversion payments.

e, area, and prices, 1984/85-1990/91 1/

	Disappearance				Ending stocks		
	Domestic use	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 3/
and al	Seed						Total
Million metric tons							
	1.5	130.6	163.5	56.1	219.6	8.9	57.5
	1.5	135.1	170.0	36.1	206.2	20.4	126.4
	1.4	145.1	180.7	45.9	226.6	48.7	152.1
	1.3	147.0	183.9	52.1	236.0	34.1	133.6
	1.2	119.4	157.1	61.1	218.2	18.6	65.9
	1.2	134.3	173.0	69.9	242.9	10.5	45.5
39.7---		139.2	178.8	59.0	237.9		39.0

ested or ain	Yield per harvested hectare	Index Average price received by farmers 6/	Government support program Total payments to participants
--	Metric tons	1977=100	\$ million
2	5.48	130	7/ 1,860
2	6.07	110	7/ 2,785
1	6.12	74	8/ 7,343
2	6.15	96	8/ 8,461
2.6	4.58	126	8/ 3,157
5.9	6.00	122	7/ 3,959
5.2	6.42		

eting year for corn and sorghum begins September 1; for oats and  
eal). 4/ Preliminary. 5/ Projected. 6/ Excludes support payments.



Appendix table 2--Foreign coarse grains: Supply and disappearance, 1980/81-1990/91 1/

Year	Beginning stocks	Production	Feed	Total disappearance	Imports	Adjusted imports 2/	Ending stocks
Million metric tons							
<b>Corn:</b>							
1980/81	45.8	240.1	168.4	297.6	79.1	78.1	48.9
1981/82	48.9	235.1	175.9	291.0	77.6	67.3	43.8
1982/83	43.8	230.3	174.3	281.2	73.2	63.3	39.1
1983/84	39.1	241.5	167.7	288.7	64.9	61.1	39.8
1984/85	39.8	264.0	183.6	303.3	72.5	66.6	47.4
1985/86	47.4	254.0	185.7	291.0	62.1	54.3	41.2
1986/87	41.2	265.3	193.2	307.2	61.1	56.6	37.2
1987/88	37.2	267.7	196.3	310.6	62.8	56.7	37.7
1988/89	37.7	275.5	213.0	326.4	73.4	63.8	38.2
1989/90 3/	38.2	269.4	208.3	331.7	79.1	73.5	36.1
1990/91 4/	36.1	266.9	205.1	319.6	69.5	64.1	34.7
<b>Sorghum:</b>							
1980/81	6.9	44.6	23.3	50.8	12.8	14.1	8.1
1981/82	8.1	48.1	28.5	55.5	14.3	13.7	7.4
1982/83	7.4	44.0	25.2	50.5	12.3	11.6	6.1
1983/84	6.1	46.5	25.7	52.3	13.1	13.0	6.5
1984/85	6.5	44.0	26.1	52.1	12.9	13.1	6.0
1985/86	6.0	42.0	24.9	47.6	9.6	8.5	5.0
1986/87	5.0	40.6	23.3	46.4	8.1	7.8	4.2
1987/88	4.2	37.8	22.7	44.9	8.7	8.3	3.1
1988/89	3.1	40.9	24.3	47.5	10.9	10.8	4.3
1989/90 3/	4.3	39.9	22.4	47.6	9.5	9.3	4.4
1990/91 4/	4.4	39.4	21.7	45.7	7.6	7.8	3.8
<b>Barley:</b>							
1980/81	16.9	155.4	107.5	156.7	16.3	13.8	17.1
1981/82	17.1	144.9	105.4	149.6	20.4	13.9	14.4
1982/83	14.4	155.6	107.8	152.9	17.2	13.1	17.9
1983/84	17.9	153.6	115.4	160.4	20.3	16.4	12.9
1984/85	12.9	162.5	115.8	157.7	23.1	17.9	19.1
1985/86	19.1	165.1	120.2	161.9	22.1	18.2	22.6
1986/87	22.6	169.2	125.6	167.8	24.0	18.4	26.7
1987/88	26.7	169.8	127.2	173.7	20.7	15.8	25.2
1988/89	25.2	161.5	118.9	162.8	20.3	16.7	25.4
1989/90 3/	25.4	160.7	119.4	166.2	18.6	15.3	21.5
1990/91 4/	21.5	170.2	123.1	170.4	18.7	15.9	22.8
<b>Total coarse grains: 5/</b>							
1980/81	77.4	534.0	342.0	599.9	110.3	108.1	81.5
1981/82	81.5	520.3	351.7	588.3	114.5	97.5	72.8
1982/83	72.8	533.6	356.9	585.5	104.0	89.5	73.2
1983/84	73.2	551.1	364.5	608.9	100.2	92.8	70.8
1984/85	70.8	578.1	377.3	618.5	111.1	99.7	85.9
1985/86	85.9	568.3	386.8	608.3	95.7	82.3	81.2
1986/87	81.2	579.7	394.8	624.7	95.1	82.9	81.4
1987/88	81.4	576.9	398.3	630.5	94.0	82.1	78.9
1988/89	78.9	581.7	405.2	640.0	106.2	93.0	80.5
1989/90 3/	80.5	578.6	404.7	652.7	109.2	99.3	74.9
1990/91 4/	74.9	589.6	405.5	646.0	97.8	89.6	76.3

1/ Aggregated on basis of local marketing years, except for adjusted imports. 2/ Based on Oct./Sept. trade year and excludes intra-EC trade. 3/ Forecast. 4/ Projected. 5/ Includes oats, rye, millet, and mixed grains.

Source: Compiled from World Grain Situation and Outlook, Foreign Agricultural Service, and USDA data.



Appendix table 3--Corn: Quarterly supply and disappearance, specified periods,

Year beginning September 1	Supply				Food, alcohol, and industrial	Domestic Seed
	Begin- ning stocks	Produc- tion	Imports	Total		
----- Milli						
1984/85:						
Sept.-Nov.	1,006.3	7,672.1	0.7	8,679.1	249.7	0.0
Dec.-Feb.	6,631.1	---	0.1	6,631.2	241.5	0.0
Mar.-May	4,623.2	---	0.8	4,624.0	283.8	17.0
June-Aug.	2,835.5	---	0.1	2,835.6	295.0	4.2
Mkt. year	1,006.3	7,672.1	1.7	8,680.1	1,070.0	21.2
1985/86:						
Sept.-Nov.	1,648.2	8,875.5	0.9	10,524.6	278.0	0.0
Dec.-Feb.	8,614.7	---	1.0	8,615.7	264.0	0.0
Mar.-May	6,587.1	---	2.2	6,589.3	293.0	16.1
June-Aug.	4,990.0	---	5.9	4,995.9	305.0	3.4
Mkt. year	1,648.2	8,875.5	10.0	10,533.7	1,140.0	19.5
1986/87:						
Sept.-Nov.	4,039.5	8,225.8	0.7	12,266.0	280.0	0.0
Dec.-Feb.	10,305.5	---	0.2	10,305.7	270.0	0.0
Mar.-May	8,248.2	---	0.4	8,248.6	310.0	16.4
June-Aug.	6,332.2	---	0.4	6,332.6	315.0	0.3
Mkt. year	4,039.5	8,225.8	1.7	12,267.0	1,175.0	16.7
1987/88:						
Sept.-Nov.	4,881.7	7,131.3	0.5	12,013.5	292.0	0.0
Dec.-Feb.	9,771.0	---	0.7	9,771.7	282.0	0.0
Mar.-May	7,635.6	---	1.4	7,637.0	315.0	16.7
June-Aug.	5,839.2	---	0.8	5,840.0	323.0	0.5
Mkt. year	4,881.7	7,131.3	3.4	12,016.4	1,212.0	17.2
1988/89:						
Sept.-Nov.	4,259.1	4,928.7	0.6	9,188.4	295.0	0.0
Dec.-Feb.	7,071.6	---	0.6	7,072.2	285.0	0.0
Mar.-May	5,203.9	---	1.2	5,205.1	322.2	16.8
June-Aug.	3,419.3	---	0.4	3,419.7	330.2	1.9
Mkt. year	4,259.1	4,928.7	2.8	9,190.6	1,232.4	18.7
1989/90:						
Sept.-Nov.	1,930.4	7,527.2	0.6	9,458.3	298.0	0.0
Dec.-Feb.	7,079.2	---	0.5	7,079.8	297.0	0.0
Mar.-May	4,812.7	---	0.6	4,813.3	338.3	16.7
June-Aug.	2,843.2	---	0.2	2,843.4	337.7	2.3
Mkt. year 2/	1,930.4	7,527.2	2.0	9,459.6	1,271.0	19.0
1990/91:						
Mkt. year 3/	1,344.5	7,934.9	2.0	9,281.4	---1,320.0---	

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary.

Periods, 1984/85-1990/91

Disappearance					Ending stocks		
Domestic use	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Seed							
Million bushels							
0.0	1,295.1	1,544.8	503.2	2,048.0	206.7	6,424.4	6,631.1
0.0	1,186.1	1,427.6	580.4	2,008.0	209.7	4,413.5	4,623.2
7.0	1,013.0	1,313.8	474.7	1,788.5	221.7	2,613.8	2,835.5
4.2	596.3	895.5	291.9	1,187.4	224.9	1,423.3	1,648.2
1.2	4,090.5	5,181.7	1,850.2	7,031.9	224.9	1,423.3	1,648.2
0.0	1,217.1	1,495.1	414.8	1,909.9	388.6	8,226.1	8,614.7
0.0	1,304.4	1,568.4	460.2	2,028.6	509.4	6,077.7	6,587.1
6.1	1,088.8	1,397.9	201.4	1,599.3	550.9	4,439.1	4,990.0
3.4	542.2	850.6	105.8	956.4	545.7	3,493.8	4,039.5
9.5	4,152.5	5,312.0	1,182.2	6,494.2	545.7	3,493.8	4,039.5
0.0	1,362.3	1,642.3	318.2	1,960.5	968.2	9,337.3	10,305.5
0.0	1,474.7	1,744.7	312.8	2,057.5	1,362.2	6,886.0	8,248.2
6.4	1,093.9	1,420.3	496.1	1,916.4	1,491.5	4,840.7	6,332.2
0.3	770.3	1,085.6	365.3	1,450.9	1,443.2	3,438.5	4,881.7
6.7	4,701.2	5,892.9	1,492.4	7,385.3	1,443.2	3,438.5	4,881.7
0.0	1,554.9	1,846.9	395.6	2,242.5	1,683.4	8,087.6	9,771.0
0.0	1,449.4	1,731.4	404.7	2,136.1	1,767.7	5,867.9	7,635.6
6.7	956.4	1,288.1	509.7	1,797.8	1,304.9	4,534.3	5,839.2
0.5	851.0	1,174.5	406.4	1,580.9	835.0	3,424.1	4,259.1
7.2	4,811.7	6,040.9	1,716.4	7,757.3	835.0	3,424.1	4,259.1
0.0	1,351.0	1,646.0	470.8	2,116.8	611.0	6,460.6	7,071.6
0.0	1,080.7	1,365.7	502.6	1,868.3	465.0	4,738.9	5,203.9
6.8	855.2	1,194.2	591.6	1,785.8	417.7	3,001.6	3,419.3
1.9	693.8	1,025.9	463.4	1,489.3	362.5	1,567.9	1,930.4
8.7	3,980.7	5,231.8	2,028.4	7,260.2	362.5	1,567.9	1,930.4
0.0	1,498.7	1,796.7	582.3	2,379.0	628.2	6,451.0	7,079.2
0.0	1,288.5	1,585.5	681.6	2,267.1	537.2	4,275.5	4,812.7
6.7	1,014.3	1,369.3	600.8	1,970.1	299.3	2,543.9	2,843.2
2.3	656.3	996.3	502.6	1,498.9	233.0	1,111.5	1,344.5
19.0	4,457.8	5,747.8	2,367.3	8,115.1	233.0	1,111.5	1,344.5
--	4,700.0	6,020.0	2,025.0	8,045.0			1,236.4

1/ Projected.

Appendix table 4--Sorghum: Quarterly supply and disappearance, specified period

Year beginning September 1	Supply				Disappearance	
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Seed
-----Million metric tons-----						
1984/85:						
Sept.-Nov.	287.4	866.2	0.0	1,153.6	4.1	0.0
Dec.-Feb.	853.8	---	0.1	853.9	4.5	0.0
Mar.-May	560.7	---	0.0	560.7	3.8	1.5
June-Aug.	360.8	---	0.0	360.8	2.9	0.5
Mkt. year	287.4	866.2	0.1	1,153.7	15.3	2.0
1985/86:						
Sept.-Nov.	300.2	1,120.3	0.0	1,420.5	7.6	0.0
Dec.-Feb.	1,112.2	---	0.0	1,112.2	7.9	0.0
Mar.-May	828.4	---	0.0	828.4	6.6	1.2
June-Aug.	630.0	---	0.0	630.0	3.9	0.5
Mkt. year	300.2	1,120.3	0.0	1,420.5	26.0	1.7
1986/87:						
Sept.-Nov.	551.0	938.9	0.0	1,489.9	2.8	0.0
Dec.-Feb.	1,259.2	---	0.0	1,259.2	2.9	0.0
Mar.-May	1,017.7	---	0.0	1,017.7	2.4	1.0
June-Aug.	835.0	---	0.0	835.0	2.2	0.6
Mkt. year	551.0	938.9	0.0	1,489.9	10.4	1.6
1987/88:						
Sept.-Nov.	743.3	730.8	0.0	1,474.1	4.9	0.0
Dec.-Feb.	1,252.4	---	0.0	1,252.4	5.1	0.0
Mar.-May	1,011.1	---	0.0	1,011.1	4.2	0.8
June-Aug.	807.8	---	0.0	807.9	9.3	0.5
Mkt. year	743.3	730.8	0.0	1,474.1	23.5	1.3
1988/89:						
Sept.-Nov.	662.7	576.7	0.0	1,239.3	5.9	0.0
Dec.-Feb.	997.7	---	0.0	997.7	6.1	0.0
Mar.-May	725.1	---	0.0	725.1	5.0	0.8
June-Aug.	559.0	---	0.0	559.0	3.5	0.7
Mkt. year	662.7	576.7	0.0	1,239.3	20.5	1.5
1989/90:						
Sept.-Nov.	439.5	617.9	0.0	1,057.4	3.6	0.0
Dec.-Feb.	791.8	---	0.0	791.8	4.4	0.0
Mar.-May	513.6	---	0.1	513.7	2.5	0.6
June-Aug.	335.0	---	0.1	335.1	3.1	0.5
Mkt. year 2/	439.5	617.9	0.2	1,057.6	13.6	1.1
1990/91:						
Mkt. year 3/	219.8	559.8	0.0	780.0	---15.0---	

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary.



periods, 1984/85-1990/91

Disappearance					Ending stocks		
Domestic use							
Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Million bushels							
0.0	209.9	214.0	85.8	299.8	93.1	760.7	853.8
0.0	201.4	205.9	87.3	293.2	105.2	455.5	560.7
1.5	130.9	136.2	63.7	199.9	111.1	249.7	360.8
0.5	(2.9)	0.5	60.1	60.6	112.1	188.1	300.2
2.0	539.3	556.6	296.9	853.5	112.1	188.1	300.2
0.0	230.4	238.0	70.2	308.2	138.6	973.6	1,112.2
0.0	232.8	240.7	43.1	283.9	175.2	653.2	828.4
1.2	163.7	171.4	26.9	198.3	181.4	448.6	630.0
0.5	36.9	41.3	37.7	79.0	207.2	343.8	551.0
1.7	663.8	691.5	178.0	869.5	207.2	343.8	551.0
0.0	180.4	183.3	47.5	230.7	292.1	967.1	1,259.2
0.0	182.3	185.3	56.2	241.5	364.9	652.8	1,017.7
1.0	128.2	131.6	51.2	182.8	400.4	434.6	835.0
0.6	45.3	48.1	43.5	91.6	408.9	334.4	743.3
1.6	536.2	548.2	198.3	746.5	408.9	334.4	743.3
0.0	171.3	176.2	45.5	221.7	465.3	787.1	1,252.4
0.0	173.1	178.2	63.1	241.3	545.5	465.6	1,011.1
0.8	121.2	126.2	77.1	203.3	511.4	296.4	807.8
0.5	89.6	99.4	45.8	145.2	463.6	199.1	662.7
1.3	555.1	579.9	231.6	811.5	463.6	199.1	662.7
0.0	171.3	177.1	64.5	241.6	432.9	564.8	997.7
0.0	173.1	179.2	93.5	272.6	396.4	328.7	725.1
0.8	80.1	86.0	80.1	166.1	363.8	195.2	559.0
0.7	43.2	47.4	72.1	119.5	340.9	98.6	439.5
1.5	467.6	489.6	310.2	799.8	340.9	98.6	439.5
0.0	168.1	171.7	93.8	265.6	314.6	477.2	791.8
0.0	192.6	197.0	81.2	278.2	223.0	290.6	513.6
0.6	94.4	97.5	81.3	178.7	190.2	144.8	335.0
0.5	61.0	64.6	50.8	115.3	162.5	57.3	219.8
1.1	516.1	530.8	307.1	837.8	162.5	57.3	219.8
-	440.0	455.0	225.0	680.0			100.0

ry. 3/ Projected.

Appendix table 5--Barley: Quarterly supply and disappearance, specified periods,

Year beginning June 1	Supply				Domestic	
	Begin- ning stocks	Produc- tion	Imports	Total	Food, alcohol, and industrial	Seed re
Million bushels						
1984/85:						
June-Aug.	189.4	598.0	2.7	790.1	39.9	0.0
Sept.-Nov.	639.0	---	0.9	639.9	34.6	1.5
Dec.-Feb.	484.9	---	2.4	487.3	34.2	1.7
Mar.-May	358.7	---	1.5	360.2	40.3	18.2
Mkt. year	189.4	598.0	7.5	794.9	149.0	21.4
1985/86:						
June-Aug.	247.4	590.2	0.7	838.3	39.1	0.0
Sept.-Nov.	698.3	---	1.3	699.6	33.7	1.5
Dec.-Feb.	572.1	---	2.5	574.6	33.7	1.7
Mar.-May	464.7	---	1.7	466.4	40.7	18.1
Mkt. year	247.4	590.2	6.2	843.8	147.2	21.3
1986/87:						
June-Aug.	327.2	608.5	1.3	937.0	42.2	0.0
Sept.-Nov.	786.8	---	1.0	787.8	36.5	1.3
Dec.-Feb.	634.3	---	1.2	635.5	35.8	1.4
Mar.-May	499.3	---	3.1	502.4	41.6	15.2
Mkt. year	327.2	608.5	6.6	942.3	156.1	17.9
1987/88:						
June-Aug.	336.3	521.5	1.1	858.9	42.8	0.0
Sept.-Nov.	725.0	---	2.9	727.9	37.1	1.1
Dec.-Feb.	582.4	---	4.3	586.7	36.3	1.3
Mar.-May	458.5	---	3.0	461.5	42.1	13.3
Mkt. year	336.3	521.5	11.3	869.1	158.3	15.7
1988/89:						
June-Aug.	321.1	290.0	2.8	613.9	45.2	0.0
Sept.-Nov.	450.4	---	2.2	452.6	39.4	1.1
Dec.-Feb.	372.1	---	2.8	374.9	37.2	1.2
Mar.-May	280.6	---	2.7	283.3	42.9	12.7
Mkt. year	321.1	290.0	10.5	621.6	164.7	15.0
1989/90:						
June-Aug.	196.4	404.2	3.6	604.2	46.7	0.0
Sept.-Nov.	416.9	---	2.0	418.9	40.1	1.0
Dec.-Feb.	350.6	---	4.4	355.0	38.0	1.1
Mar.-May	252.7	---	4.2	256.9	40.6	12.3
Mkt. year 2/	196.4	404.2	14.2	614.8	165.4	14.4
1990/91:						
June-Aug.	160.8	418.9	1.0	580.8	48.0	0.0
Mkt. year 3/	160.8	418.9	15.0	594.7	----185.0----	

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/

ods, 1984/85-1990/91

Disappearance				Ending stocks		
Domestic use Feed and residual	Total	Exports	Total disap- pearance	Govt. owned	Privately owned 1/	Total
bushels						
100.1	140.0	11.1	151.1	12.2	626.8	639.0
83.7	119.8	35.2	155.0	13.0	471.9	484.9
71.7	107.6	21.0	128.6	14.2	344.5	358.7
50.0	108.5	4.3	112.8	15.6	231.8	247.4
305.5	475.9	71.6	547.5	15.6	231.8	247.4
90.5	129.6	10.4	140.0	20.0	678.3	698.3
85.0	120.2	7.3	127.5	36.1	536.0	572.1
73.2	108.6	1.3	109.9	47.3	417.4	464.7
79.6	138.4	0.8	139.2	57.4	269.8	327.2
328.3	496.8	19.8	516.6	57.4	269.8	327.2
94.5	136.7	13.5	150.2	56.0	730.8	786.8
72.2	110.0	43.5	153.5	66.2	568.1	634.3
67.2	104.4	31.8	136.2	75.2	424.1	499.3
64.5	121.3	44.8	166.1	75.5	260.8	336.3
298.4	472.4	133.6	606.0	75.5	260.8	336.3
74.3	117.1	16.8	133.9	74.9	650.1	725.0
64.8	103.0	42.5	145.5	79.5	502.9	582.4
57.6	95.2	33.0	128.2	57.0	401.5	458.5
56.4	111.8	28.6	140.4	50.1	271.0	321.1
253.1	427.1	120.9	548.0	50.1	271.0	321.1
92.5	137.7	25.8	163.5	35.9	414.5	450.4
27.4	67.9	12.6	80.5	35.9	336.2	372.1
40.6	79.0	15.3	94.3	34.1	246.5	280.6
5.7	61.3	25.6	86.9	30.4	166.0	196.4
166.2	345.9	79.3	425.2	30.4	166.0	196.4
113.9	160.6	26.6	187.2	36.6	380.3	416.9
10.0	51.1	17.2	68.3	36.3	314.3	350.6
40.2	79.3	23.1	102.3	32.1	220.6	252.7
21.1	74.0	22.1	96.1	19.0	141.8	160.8
185.2	365.0	89.0	453.9	19.0	141.8	160.8
91.1	139.1	30.9	169.9	14.3	396.6	410.9
175.0	360.0	85.0	445.0			150.0

3/ Projected.

Appendix table 6--Oats: Quarterly supply and disappearance, specified periods

Year beginning June 1	Supply				Food, alcohol, and industrial	Domestic Seed Mill
	Begin- ning stocks	Produc- tion	Imports	Total		
1984/85:						
June-Aug.	180.9	473.7	2.0	656.6	11.8	0.0
Sept.-Nov.	517.8	---	8.7	526.5	10.5	3.7
Dec.-Feb.	397.0	---	12.2	409.2	10.2	0.9
Mar.-May	296.3	---	10.8	307.1	8.5	26.5
Mkt. year	180.9	473.7	33.6	688.2	41.0	31.2
1985/86:						
June-Aug.	179.9	518.5	4.4	702.9	12.8	0.0
Sept.-Nov.	554.1	---	4.2	558.3	11.2	3.9
Dec.-Feb.	424.8	---	8.9	433.7	10.9	1.0
Mar.-May	312.5	---	9.7	322.2	9.0	27.6
Mkt. year	179.9	518.5	27.2	725.7	44.0	32.5
1986/87:						
June-Aug.	183.7	385.0	8.7	577.4	13.1	0.0
Sept.-Nov.	451.6	---	4.8	456.4	11.5	4.6
Dec.-Feb.	342.2	---	9.2	351.4	11.1	1.1
Mar.-May	248.5	---	9.6	258.2	9.3	32.3
Mkt. year	183.7	385.0	32.4	601.1	45.0	38.0
1987/88:						
June-Aug.	132.7	373.7	7.0	513.4	14.5	0.0
Sept.-Nov.	393.9	---	8.1	402.0	12.7	3.8
Dec.-Feb.	294.2	---	15.8	310.0	12.3	0.9
Mar.-May	212.2	---	14.8	227.1	10.2	26.9
Mkt. year	132.7	373.7	45.7	552.1	49.8	31.6
1988/89:						
June-Aug.	112.0	217.6	12.3	341.8	21.2	0.0
Sept.-Nov.	263.8	---	11.9	275.7	18.6	3.3
Dec.-Feb.	204.4	---	20.1	224.5	18.0	0.8
Mar.-May	159.9	---	18.6	178.5	15.0	23.0
Mkt. year	112.0	217.6	62.9	392.5	72.7	27.1
1989/90:						
June-Aug.	98.3	373.6	17.0	488.9	26.6	0.0
Sept.-Nov.	373.3	---	17.5	390.8	23.3	2.8
Dec.-Feb.	287.2	---	22.3	309.5	22.6	0.7
Mar.-May	214.7	---	15.7	230.4	18.8	19.7
Mkt. year 2/	98.3	373.6	72.4	544.3	91.3	23.2
1990/91:						
June-Aug.	156.9	358.3	17.5	532.7	29.1	0.0
Mkt. year 3/	156.9	358.3	60.0	576.0	---120.0---	

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve 2/ Preliminary.

periods, 1984/85-1990/91

Disappearance					Ending stocks		
Domestic use			Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Seed	Feed and residual	Total					
Million bushels							
0.0	126.9	138.7	0.1	138.8	1.4	516.4	517.8
3.7	115.1	129.3	0.2	129.5	1.4	395.6	397.0
0.9	101.6	112.8	0.1	112.9	1.4	294.9	296.3
26.5	92.0	127.0	0.1	127.1	1.4	178.5	179.9
31.2	435.6	507.8	0.5	508.3	1.4	178.5	179.9
0.0	135.8	148.7	0.1	148.8	1.5	552.6	554.1
3.9	118.1	133.2	0.3	133.5	1.9	422.9	424.8
1.0	109.3	121.2	0.1	121.2	2.0	310.5	312.5
27.6	101.0	137.7	0.8	138.4	1.9	181.8	183.7
32.5	464.2	540.7	1.2	541.9	1.9	181.8	183.7
0.0	112.5	125.6	0.2	125.9	2.4	449.2	451.6
4.6	97.8	113.9	0.3	114.2	3.2	339.0	342.2
1.1	90.5	102.8	0.1	102.9	3.6	244.9	248.5
32.3	83.7	125.2	0.3	125.5	3.5	129.2	132.7
38.0	384.5	467.5	0.9	468.4	3.5	129.2	132.7
0.0	104.8	119.3	0.2	119.5	3.3	390.6	393.9
3.8	91.1	107.6	0.1	107.8	3.4	290.8	294.2
0.9	84.3	97.6	0.1	97.7	3.4	208.8	212.2
26.9	77.9	115.0	0.1	115.1	3.5	108.5	112.0
31.6	358.2	439.6	0.5	440.1	3.5	108.5	112.0
0.0	56.7	77.9	0.2	78.1	3.0	260.8	263.8
3.3	49.3	71.1	0.1	71.3	2.5	201.9	204.4
0.8	45.6	64.4	0.2	64.6	2.6	157.3	159.9
23.0	42.2	80.1	0.1	80.2	2.4	95.9	98.3
27.1	193.8	293.6	0.6	294.2	2.4	95.9	98.3
0.0	88.7	115.4	0.2	115.6	1.3	372.0	373.3
2.8	77.1	103.3	0.3	103.5	1.2	286.0	287.2
0.7	71.4	94.7	0.2	94.8	1.1	213.6	214.7
19.7	34.8	73.3	0.2	73.5	0.7	156.2	156.9
23.2	272.1	386.6	0.8	387.4	0.7	156.2	156.9
0.0	150.9	180.0	0.2	180.2	0.6	351.9	352.5
--	330.0	450.0	1.0	451.0			125.0

ry. 3/ Projected.





Appendix table 7--Average prices received by farmers, United States, by month, and loan rate, 1982-90 1/

Year	Sept.	Oct. 2/	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average 3/	Loan rate
<b>Corn:</b>														
\$/bu														
1982	2.15	1.98	2.13	2.26	2.36	2.56	2.71	2.95	3.03	3.04	3.13	3.35	2.55	2.55
1983	3.32	3.15	3.17	3.15	3.15	3.11	3.21	3.32	3.34	3.36	3.30	3.12	3.21	2.65
1984	2.90	2.65	2.55	2.56	2.64	2.62	2.67	2.70	2.68	2.64	2.60	2.44	2.63	2.55
1985	2.29	2.11	2.21	2.29	2.33	2.32	2.29	2.30	2.39	2.32	2.00	1.73	2.23	2.55
1986	1.45	1.40	1.47	1.50	1.48	1.42	1.47	1.52	1.66	1.69	1.60	1.47	1.50	1.92
1987	1.49	1.55	1.61	1.72	1.77	1.83	1.86	1.88	1.94	2.41	2.72	2.65	1.94	1.82
1988	2.60	2.58	2.51	2.53	2.60	2.59	2.60	2.56	2.58	2.52	2.47	2.27	2.54	1.77
1989	2.29	2.22	2.24	2.27	2.32	2.32	2.37	2.51	2.62	2.63	2.62	2.51	2.36	1.65
1990	2.32	2.15												
<b>Sorghum:</b>														
\$/cwt														
1982	3.80	3.70	3.78	3.97	4.09	4.42	4.67	4.92	5.05	5.05	5.03	5.29	4.41	4.32
1983	5.26	5.01	4.98	4.93	4.92	4.74	4.85	5.00	5.08	4.94	4.64	4.58	4.89	4.50
1984	4.24	4.05	4.05	4.15	4.16	4.10	4.24	4.46	4.54	4.52	4.04	3.74	4.15	4.32
1985	3.27	3.30	3.47	3.76	3.69	3.55	3.67	3.80	3.99	3.43	3.06	2.66	3.45	4.32
1986	2.36	2.34	2.39	2.41	2.37	2.36	2.44	2.58	2.69	2.79	2.66	2.52	2.45	3.25
1987	2.43	2.48	2.69	2.72	2.75	2.88	2.92	2.94	2.91	4.13	4.56	4.41	3.04	3.11
1988	4.26	4.16	3.99	4.07	4.09	4.05	4.04	4.21	4.03	3.90	4.00	3.81	4.05	3.00
1989	3.80	3.61	3.68	3.54	3.58	3.53	3.69	3.89	4.04	4.29	4.44	4.14	3.75	2.80
1990	3.95	3.47												
Year	June	July	Aug.	Sept.	Oct. 2/	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average 3/	Loan rate
<b>Oats:</b>														
\$/bu														
1982	1.88	1.57	1.39	1.35	1.32	1.40	1.44	1.46	1.48	1.49	1.54	1.54	1.49	1.31
1983	1.51	1.46	1.45	1.55	1.62	1.67	1.73	1.81	1.88	1.81	1.82	1.84	1.62	1.36
1984	1.80	1.68	1.62	1.60	1.69	1.64	1.72	1.74	1.69	1.68	1.68	1.60	1.67	1.31
1985	1.59	1.31	1.16	1.10	1.08	1.17	1.20	1.18	1.16	1.14	1.13	1.21	1.23	1.31
1986	1.10	0.90	0.86	0.99	1.10	1.32	1.44	1.46	1.47	1.45	1.50	1.57	1.21	0.99
1987	1.52	1.29	1.40	1.49	1.61	1.62	1.76	1.79	1.84	1.78	1.82	1.84	1.56	0.94
1988	2.63	2.86	2.54	2.57	2.56	2.41	2.47	2.52	2.46	2.41	2.24	2.13	2.61	0.90
1989	1.82	1.53	1.47	1.38	1.47	1.48	1.53	1.47	1.43	1.39	1.44	1.46	1.49	0.85
1990	1.34	1.15	1.06	1.08	1.16									
<b>All barley:</b>														
1982	2.39	2.16	2.20	2.17	1.98	2.06	2.19	2.16	2.00	2.09	2.22	2.36	2.18	2.08
1983	2.32	2.20	2.34	2.46	2.53	2.55	2.55	2.55	2.47	2.50	2.54	2.78	2.47	2.16
1984	2.61	2.54	2.26	2.25	2.29	2.25	2.19	2.24	2.21	2.18	2.16	2.22	2.29	2.08
1985	2.14	2.08	1.98	1.88	1.96	2.05	2.07	2.05	1.95	1.88	1.85	1.73	1.98	2.08
1986	1.57	1.67	1.51	1.45	1.58	1.69	1.62	1.60	1.63	1.69	1.69	1.76	1.61	1.56
1987	1.74	1.84	2.00	1.87	1.73	1.88	1.83	1.78	1.72	1.65	1.74	1.79	1.81	1.49
1988	2.45	2.97	2.96	2.94	2.86	2.96	2.73	2.74	2.67	2.74	2.73	2.64	2.80	1.44
1989	2.34	2.16	2.70	2.47	2.41	2.47	2.47	2.33	2.33	2.19	2.22	2.38	2.42	1.34
1990	2.28	2.16	2.18	2.24	2.04									
Year	June	July	Aug.	Sept.	Oct. 2/	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May		
<b>Feed barley:</b>														
\$/bu														
1982	2.52	2.23	1.98	1.91	1.87	1.94	1.98	2.07	1.99	2.08	2.26	2.43		
1983	2.52	2.31	2.23	2.41	2.45	2.51	2.52	2.58	2.47	2.54	2.55	2.86		
1984	2.72	2.60	2.10	2.13	2.19	2.19	2.20	2.22	2.27	2.19	2.16	2.30		
1985	2.26	2.05	1.75	1.74	1.85	1.90	2.03	2.00	1.90	1.83	1.85	1.81		
1986	1.61	1.44	1.21	1.33	1.49	1.62	1.59	1.56	1.61	1.69	1.71	1.84		
1987	1.79	1.67	1.54	1.57	1.66	1.68	1.63	1.65	1.64	1.59	1.73	1.76		
1988	2.07	2.34	2.37	2.39	2.34	2.30	2.27	2.28	2.29	2.35	2.32	2.27		
1989	2.18	1.96	2.06	1.98	1.97	2.09	2.10	2.02	2.08	1.99	2.08	2.28		
1990	2.25	2.02	1.75	1.85	1.93									
<b>Malting barley:</b>														
1982	2.26	2.10	2.38	2.58	2.22	2.26	2.39	2.32	2.00	2.09	2.13	2.18		
1983	2.05	2.06	2.50	2.69	2.72	2.61	2.61	2.50	2.47	2.46	2.54	2.53		
1984	2.52	2.48	2.50	2.52	2.52	2.39	2.18	2.29	2.11	2.17	2.17	2.10		
1985	2.02	2.13	2.49	2.33	2.24	2.32	2.19	2.13	1.99	1.93	1.85	1.66		
1986	1.52	2.07	2.23	1.85	1.83	1.78	1.65	1.70	1.69	1.69	1.65	1.66		
1987	1.68	2.04	2.55	2.39	1.88	2.07	2.01	2.15	1.80	1.80	1.75	1.81		
1988	2.80	3.26	3.38	3.47	3.41	3.34	3.27	3.32	3.22	3.22	3.16	3.04		
1989	2.62	2.68	3.04	2.87	2.89	2.90	2.88	2.73	2.61	2.45	2.50	2.58		
1990	2.37	2.38	2.52	2.56	2.24									

1/ Prices do not include an allowance for loans outstanding and Government purchases. 2/ October 1990 is preliminary. 3/ U.S. season-average prices based on monthly prices weighted by monthly marketings.

Source: Agricultural Prices, Agricultural Statistics Board, USDA.

Appendix table 8--Cash prices at principal markets, 1985-90

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
\$/bu													
Corn, no. 2 yellow, Central Illinois:													
1985	2.28	2.10	2.32	2.38	2.36	2.33	2.29	2.31	2.42	2.41	1.93	1.52	2.22
1986	1.34	1.34	1.55	1.52	1.44	1.38	1.46	1.56	1.75	1.74	1.60	1.46	1.51
1987	1.50	1.64	1.74	1.78	1.84	1.90	1.92	1.92	1.97	2.66	2.85	2.70	2.04
1988	2.68	2.70	2.54	2.56	2.62	2.60	2.64	2.58	2.64	2.53	2.44	2.30	2.57
1989	2.35	2.25	2.29	2.29	2.29	2.34	2.44	2.64	2.73	2.70	2.68	2.54	2.46
1990	2.26	2.20											
Corn, no. 2 yellow, Gulf Ports:													
1985	2.59	2.50	2.69	2.75	2.72	2.63	2.56	2.57	2.68	2.63	2.12	1.85	2.52
1986	1.68	1.66	1.83	1.81	1.73	1.70	1.83	1.89	2.06	2.06	1.95	1.81	1.83
1987	1.86	1.99	2.08	2.11	2.20	2.23	2.29	2.28	2.29	3.05	3.22	3.02	2.39
1988	3.08	3.07	2.89	2.99	3.01	2.99	3.02	2.93	2.99	2.87	2.73	2.57	2.93
1989	2.62	2.99	2.75	2.76	2.69	2.70	2.72	3.01	3.08	3.05	2.92	2.79	2.84
1990	2.59	2.55											
Corn, no. 2 yellow, St. Louis:													
1985	2.38	2.27	2.50	2.59	2.55	2.50	2.42	2.46	2.56	2.52	2.01	1.67	2.37
1986	1.47	1.46	1.68	1.69	1.61	1.57	1.65	1.74	1.93	1.92	1.79	1.65	1.68
1987	1.65	1.78	1.91	1.97	2.05	2.07	2.09	2.10	2.13	2.77	2.96	2.81	2.19
1988	2.82	2.82	2.70	2.76	2.81	2.79	2.82	2.76	2.83	2.58	2.57	2.38	2.72
1989	2.38	2.44	2.48	2.44	2.45	2.48	2.57	2.77	2.86	2.85	2.75	2.59	2.59
1990	2.37	2.32											
Sorghum, no.2 yellow, Gulf Ports: 1/													
1985	3.70	3.97	4.34	4.52	4.45	4.30	4.28	4.50	4.80	3.90	3.37	2.71	4.07
1986	2.95	3.15	3.26	3.15	3.05	3.09	3.35	3.30	3.51	3.50	3.30	3.04	3.22
1987	3.13	3.35	3.55	3.50	3.65	3.80	3.86	3.70	3.73	5.00	5.33	4.93	3.96
1988	4.99	4.91	4.64	4.93	4.99	4.99	5.02	4.89	5.05	4.75	4.02	4.53	4.81
1989	4.67	4.61	4.69	4.70	4.62	4.59	4.70	4.97	5.04	4.87	4.95	4.73	4.76
1990	4.48	4.43											
Sorghum, no. 2 yellow, Kansas City:													
1985	3.56	3.62	3.75	3.97	3.95	3.80	3.82	4.00	4.25	4.00	3.20	2.71	3.72
1986	2.47	2.60	2.70	2.62	2.50	2.57	2.80	2.85	3.10	3.20	2.80	2.55	2.73
1987	2.64	2.75	2.90	2.95	3.05	3.24	3.27	3.16	3.21	4.58	4.79	4.28	3.40
1988	4.27	4.17	4.00	4.23	4.24	4.26	4.32	4.17	4.29	4.15	3.96	3.92	4.17
1989	4.73	3.91	4.00	3.98	3.91	3.84	4.01	4.32	4.47	4.54	4.48	4.27	4.21
1990	3.89	3.79											
Sorghum, no. 2 yellow, Texas High Plains:													
1985	4.19	4.38	4.30	4.49	4.47	4.36	4.33	4.48	4.77	4.84	3.93	3.36	4.33
1986	3.35	3.24	2.97	3.06	2.94	2.89	3.06	3.32	3.56	3.60	3.58	3.30	3.24
1987	3.19	3.27	3.27	3.39	3.40	3.53	3.56	3.54	3.55	4.84	5.25	4.96	3.81
1988	4.98	4.95	4.62	4.63	4.75	4.69	4.72	4.63	4.50	4.59	4.46	4.44	4.66
1989	4.39	4.13	4.06	4.03	4.04	4.02	4.10	4.38	4.96	4.94	4.82	4.63	4.38
1990	4.27	4.17											
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
\$/bu													
Barley, no. 3 or better malting, 65% or better plump, Minneapolis:													
1985	2.46	2.25	2.03	2.15	2.10	2.27	2.29	2.28	2.20	2.34	2.40	2.07	2.24
1986	1.84	1.75	1.61	1.76	1.93	2.02	1.88	1.81	1.92	2.01	2.05	2.12	1.89
1987	2.07	1.93	1.73	1.98	2.08	2.05	2.01	2.02	2.15	2.08	2.11	2.24	2.04
1988	3.61	3.87	4.25	4.40	4.39	4.14	3.82	4.14	4.19	4.33	4.29	3.84	4.11
1989	3.02	3.33	3.57	3.42	3.48	3.18	3.19	3.20	3.02	2.83	2.97	3.17	3.20
1990	2.92	2.36	2.35	2.32	2.30								
Barley, no. 2 feed, Minneapolis: 2/ 3/													
1985	1.90	1.66	1.46	1.40	1.41	1.49	1.60	1.57	NA	NA	NA	1.31	1.53
1986	1.23	1.16	1.13	1.27	1.50	1.63	1.23	NA	NA	1.64	1.76	1.86	1.44
1987	1.73	1.59	1.60	1.76	1.78	1.82	1.74	1.72	1.77	1.88	1.94	1.98	1.78
1988	2.41	2.28	2.08	2.24	2.32	2.27	2.14	2.24	2.33	2.49	2.52	2.41	2.31
1989	2.12	2.22	2.17	2.14	2.16	2.15	2.23	2.28	2.22	2.27	2.27	2.33	2.21
1990	2.39	2.17	1.99	2.01	2.11								
Oats, no. 2 heavy white, Minneapolis:													
1985	1.59	1.44	1.23	1.24	1.19	1.32	1.39	1.37	1.30	1.27	1.16	1.22	1.31
1986	1.18	1.05	1.12	1.29	1.39	1.72	1.66	1.64	1.56	1.46	1.59	1.83	1.46
1987	1.64	1.61	1.77	1.85	1.97	2.05	2.02	2.10	2.06	1.93	1.94	2.12	1.92
1988	3.26	3.25	3.09	3.07	2.99	2.71	2.74	2.87	2.59	2.49	2.30	2.22	2.80
1989	1.97	1.72	1.53	1.58	1.56	1.68	1.70	1.56	1.48	1.57	1.63	1.68	1.64
1990	1.52	1.37	1.25	1.23	1.29								

NA = Not available.

1/ Rail delivered to Texas Gulf. 2/ Prior to June 1977 reported as barley, no. 3 or better. 3/ Reporting point changed from Minneapolis #2 feed to Duluth #2 feed beginning March 1987.

Source: Grain and Feed Market News, Agricultural Marketing Service, USDA.

Appendix table 9--Feed-price ratios for livestock, poultry, and milk, by month, 1982-90

Year	Sept.	Oct. 1/	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
<b>Hog/corn, U.S. basis: 2/</b>													
1982	28.50	28.20	24.60	23.70	23.40	21.90	18.60	15.90	15.10	14.40	13.90	13.90	20.17
1983	13.30	12.80	11.80	14.00	15.40	14.60	14.30	14.30	14.10	14.60	15.80	16.20	14.27
1984	16.00	16.50	18.40	19.00	18.20	18.40	16.30	15.30	15.40	16.90	17.60	17.40	17.12
1985	17.30	20.40	19.50	19.80	19.00	18.40	17.60	17.30	19.20	22.70	29.50	35.90	21.38
1986	40.20	37.90	35.90	33.70	31.90	33.90	32.20	33.40	32.80	35.00	37.30	39.90	35.34
1987	36.40	31.50	25.20	23.40	24.30	25.00	22.70	22.30	23.90	19.50	16.20	16.90	23.94
1988	15.70	15.00	14.40	15.70	15.70	15.60	15.10	14.40	16.10	17.90	18.60	20.10	16.19
1989	19.00	21.00	20.10	21.20	20.50	20.80	21.60	21.40	23.40	22.90	23.20	22.30	21.45
1990	23.40	26.50											
<b>Beef-steer/corn, Omaha: 3/</b>													
1982	27.50	27.70	25.10	25.20	24.50	23.40	22.70	21.90	21.80	21.20	19.60	18.10	23.23
1983	17.80	18.40	18.30	19.80	21.60	22.10	21.10	20.40	19.70	19.10	20.40	20.70	19.95
1984	21.30	22.40	24.60	25.60	24.80	24.10	22.20	21.50	21.50	21.00	20.40	21.70	22.59
1985	21.80	25.70	27.80	26.70	25.60	24.40	24.00	22.90	23.00	22.30	28.90	36.70	25.82
1986	42.10	42.70	39.70	38.80	40.80	43.90	41.90	42.20	40.20	38.90	41.40	43.90	41.38
1987	42.10	41.40	38.40	36.70	36.40	37.40	38.20	39.40	38.60	29.50	24.40	26.10	35.72
1988	26.40	26.40	28.40	27.90	28.10	28.70	29.40	30.20	29.30	29.10	29.60	32.00	28.79
1989	30.80	31.10	32.20	32.80	34.20	34.00	32.60	31.10	29.30	27.90	28.50	30.90	31.28
1990	34.50	36.50											
<b>Milk/feed, U.S. basis: 4/</b>													
1982	1.57	1.61	1.62	1.60	1.59	1.56	1.55	1.49	1.45	1.43	1.45	1.41	1.53
1983	1.36	1.39	1.36	1.34	1.33	1.33	1.34	1.32	1.32	1.32	1.35	1.40	1.35
1984	1.48	1.56	1.62	1.59	1.57	1.57	1.55	1.51	1.47	1.45	1.44	1.47	1.52
1985	1.51	1.56	1.55	1.53	1.48	1.50	1.48	1.48	1.46	1.45	1.51	1.55	1.51
1986	1.61	1.75	1.77	1.77	1.73	1.69	1.63	1.61	1.57	1.57	1.56	1.58	1.65
1987	1.64	1.65	1.65	1.63	1.51	1.47	1.43	1.40	1.37	1.36	1.15	1.19	1.45
1988	1.26	1.32	1.36	1.38	1.38	1.35	1.30	1.29	1.28	1.29	1.37	1.43	1.33
1989	1.52	1.63	1.71	1.76	1.69	1.55	1.47	1.48	1.49	1.52	1.56	1.58	1.58
1990	1.57	1.50											
<b>Egg/feed, U.S. basis: 5/</b>													
1982	6.00	6.30	6.30	6.00	5.70	5.80	6.10	5.80	6.00	5.80	5.70	6.10	5.97
1983	6.00	6.20	6.90	7.70	8.80	8.50	7.40	8.50	6.50	5.80	5.80	5.80	6.99
1984	5.90	5.70	6.50	6.30	5.50	5.60	6.30	5.70	5.50	5.90	5.90	6.50	5.94
1985	7.10	7.30	7.50	7.40	7.20	6.90	7.60	6.40	6.40	5.70	6.90	7.30	6.98
1986	7.30	7.00	8.00	7.80	7.30	7.10	6.60	6.60	5.90	6.00	5.70	5.60	6.74
1987	6.50	6.00	6.40	5.70	5.60	5.30	5.60	5.20	5.00	5.30	4.90	4.90	5.53
1988	5.40	5.30	5.40	5.40	6.00	5.80	7.40	6.30	5.90	6.10	6.20	6.90	6.01
1989	6.80	7.20	7.90	8.30	8.40	7.10	8.00	6.60	5.20	5.60	5.40	6.40	6.91
1990	6.70	7.40											
<b>Broiler/feed, U.S. basis: 6/</b>													
1982	2.60	2.50	2.50	2.50	2.60	2.70	2.40	2.30	2.40	2.60	2.80	2.80	2.56
1983	2.70	2.50	2.80	2.90	3.10	3.10	3.10	2.70	2.70	2.70	3.00	2.70	2.83
1984	2.80	2.60	2.80	2.70	2.90	2.90	2.80	2.80	3.10	3.20	3.10	3.10	2.90
1985	3.20	3.10	3.50	3.20	3.20	3.10	3.10	3.10	3.40	3.80	4.50	4.60	3.48
1986	3.80	4.40	3.90	3.40	3.60	3.50	3.30	3.20	3.30	3.00	2.90	3.30	3.47
1987	2.90	2.60	2.70	2.50	2.80	2.70	2.80	3.10	3.70	4.10	3.40	3.40	3.06
1988	3.20	2.80	2.70	2.80	2.80	2.80	3.10	3.30	3.70	3.50	3.30	3.00	3.08
1989	3.10	2.70	2.60	2.60	2.70	3.00	3.30	3.10	3.20	3.10	3.30	3.00	2.98
1990	3.20	2.80											
<b>Turkey/feed, U.S. basis: 7/</b>													
1982	3.80	3.90	3.90	3.00	2.90	2.90	2.90	2.70	2.90	3.00	2.80	2.80	3.13
1983	3.00	3.00	3.10	3.50	3.60	3.20	3.30	3.30	3.30	3.30	3.60	3.80	3.33
1984	3.90	4.40	5.00	5.50	4.70	3.80	3.70	3.70	3.70	3.90	4.20	4.50	4.25
1985	5.00	5.50	5.50	5.50	3.40	3.40	3.50	3.50	3.80	4.30	4.50	4.60	4.38
1986	4.70	4.90	4.80	4.00	3.30	3.40	3.40	3.50	3.40	3.30	3.10	3.00	3.73
1987	2.90	2.80	3.10	3.60	2.90	2.60	2.50	2.70	2.80	3.00	3.00	3.10	2.92
1988	3.40	3.60	3.60	2.90	2.70	3.00	3.10	3.40	3.50	3.50	3.30	3.30	3.28
1989	2.90	3.20	3.40	3.20	3.00	2.80	3.10	3.10	3.20	3.20	3.20	3.40	3.14
1990	3.40	3.60											

1/ October 1990 is preliminary. 2/ Bushels of corn equal in value to 100 pounds of hog, live weight. 3/ Based on price of choice beef-steers, 900-1100 pounds. 4/ Pounds of 16-percent mixed dairy feed equal in value to 1 pound whole milk. 5/ Pounds of laying feed equal in value to 1 dozen eggs. 6/ Pounds of broiler grower feed equal in value to 1 pound broiler, live weight. 7/ Pounds of turkey grower feed equal in value to 1 pound of turkey, live weight.

Sources: Agricultural Prices, Agricultural Statistics Board, USDA.  
Livestock, Meat & Wool Market News, Agricultural Marketing Service, USDA.

Appendix table 10--Price trends: Selected feeds, and corn products, 1990

Item	Unit	Sept.-Aug. 1988/89 1/	1990									
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Wholesale, mostly bulk: 2/												
Soybean meal, 44% solvent, Decatur	\$/ton	216.76	172	162	165	165	176	169	171	172	177	173
Soybean meal, high protein, Decatur	"	256.50	184	173	176	178	189	182	184	187	190	185
Cottonseed meal, 41% solvent, Memphis	"	188.05	160	150	146	150	155	148	162	170	179	163
Linseed meal, 34% solvent, Minneapolis	"	166.31	133	125	126	134	143	143	136	126	116	133
Meat and bone meal, Kansas City	"	259.83	195	194	199	199	199	204	206	194	201	209
Fishmeal, 67% protein, East Coast	"	445.28	389	389	388	321	341	314	310	316	333	364
Corn gluten feed, Illinois pts.	"	117.32	110	109	109	102	95	81	83	82	84	93
Corn gluten feed, 60% protein, Illinois pts.	"	282.49	281	261	239	238	241	216	222	224	229	232
Brewers' dried grains, Milwaukee	"	128.45	129	93	84	82	84	83	79	83	93	101
Distillers' dried grains, Lawrenceburg, Indiana	"	129.26	122	120	115	117	120	121	119	NQ	122	124
Feather meal, Arkansas pts.	"	257.95	237	207	199	208	182	171	181	177	186	202
Wheat bran, Kansas City	"	85.98	89	74	72	79	82	70	72	69	74	79
Wheat middlings, Kansas City	"	85.98	89	74	72	79	82	70	72	69	74	79
Rice bran, f.o.b. mills, Arkansas	"	64.82	83	54	53	60	72	74	95	79	64	63
Hominy feed, Illinois pts.	"	91.66	86	83	90	94	94	92	88	87	90	86
Alfalfa meal, dehydrated, Kansas City	"	136.68	136	136	136	134	127	119	113	111	110	110
Cane molasses, New Orleans	"	61.80	53	53	53	54	57	58	63	69	71	72
Molasses beet pulp, Los Angeles	"	114.01	NQ	NQ	118	118	118	117	117	117	120	121
Animal fat, Kansas City	cents/lb	11.53	11	12	12	11	11	12	12	10	10	11
Urea, 42% nitrogen, Forth Worth	\$/ton	206.33	195	206	205	202	197	200	200	202	202	200
Corn, no. 2 white, Kansas City	\$/bu	3.77	3	3	3	3	3	3	3	3	3	

## Prices paid, U.S. basis: 3/ 4/

Soybean meal, 44%	\$/cwt	16.20	14	---	---	13	---	---	13	---	---	13
Cottonseed meal, 41%	"	15.50	15	---	---	15	---	---	15	---	---	15
Wheat bran	"	10.83	11	---	---	11	---	---	11	---	---	11
Wheat middlings	"	9.52	10	---	---	9	---	---	10	---	---	9
Broiler grower feed	\$/ton	244.25	224	---	---	217	---	---	221	---	---	210
Laying feed	"	214.25	199	---	---	195	---	---	206	---	---	199
Turkey grower feed	"	257.75	239	---	---	239	---	---	240	---	---	237
Chick starter	"	246.75	227	---	---	223	---	---	234	---	---	215
Dairy feed, 16%	"	192.25	186	---	---	181	---	---	181	---	---	181
Beef cattle concentrate, 32-36% protein 5/	\$/cwt	268.25	262	---	---	250	---	---	250	---	---	251
Hog concentrate, 38-42% protein 5/	"	355.75	311	---	---	296	---	---	303	---	---	302
Stock salt 5/	"	3.36	3	---	---	3	---	---	4	---	---	4

## Corn products, wholesale: 6/

Corn meal, yellow, New York	\$/cwt	13.16	13	13	13	14	14	14	14	14	13	14
Grits (brewers'), Chicago	"	10.06	10	10	10	11	11	11	11	10	10	10
Syrup, Midwest/West	cents/lb	10.98	11	11	12	12	12	12	13	13	12	10
Sugar (dextrose), Midwest	"	24.72	25	25	25	25	25	25	25	25	25	25
High-fructose (dried weight in tank cars), Midwest	"	13.39	12	12	13	14	14	15	16	16	16	14
Corn starch, f.o.b. Midwest	\$/cwt	10.25	10	10	10	11	11	11	12	12	11	10

--- = Not applicable.

NQ = No quote.

1/ Preliminary. 2/ Grain and Feed Market News, Agricultural Marketing Service, USDA, except urea which is from Feedstuffs, Miller Publishing Co., Minneapolis, Minnesota. 3/ Agricultural Prices, Agricultural Statistics Board, USDA. 4/ Prices paid data are available on a quarterly basis only. 5/ Prices previously published in cwt. 6/ Milling and Baking News, Kansas City, Missouri, except starch which is from industry sources.

Appendix table 11--Corn, sorghum, barley, and oats exports: 1987/88 to date 1/

Year and month	Corn		Sorghum	Year and month	Barley		Oats	
	Grain only	Total			Grain only	Total	Grain only	Total
Bushels			Bushels					
1987/88:				1987/88:				
Sept.	135,401,494	136,128,505	17,831,044	June	517,681	742,738	104,217	187,886
Oct.	137,692,620	138,784,114	16,734,001	July	7,421,463	7,675,579	50,113	92,430
Nov.	122,467,307	123,085,243	10,968,017	Aug.	8,893,825	9,257,652	18,135	153,171
1st Qtr.	395,561,421	397,997,861	45,533,062	1st Qtr.	16,832,969	17,675,969	172,465	433,487
Dec.	148,173,110	149,269,833	21,239,967	Sept.	9,658,418	10,363,963	36,051	74,210
Jan.	133,336,988	134,196,121	19,399,501	Oct.	16,149,719	17,238,723	62,220	144,789
Feb.	123,237,769	124,218,907	22,498,453	Nov.	16,700,948	18,605,946	38,617	99,130
2nd Qtr.	404,747,867	407,684,861	63,137,921	2nd Qtr.	42,509,085	46,208,631	136,888	318,129
Mar.	164,083,150	165,253,019	24,662,618	Dec.	15,583,102	16,123,445	5,680	36,703
Apr.	166,222,992	166,980,188	30,324,679	Jan.	10,672,812	10,910,229	96,376	147,370
May	179,365,299	180,377,177	22,103,010	Feb.	6,764,525	7,239,965	29,937	148,578
3rd Qtr.	509,671,441	512,610,384	77,090,307	3rd Qtr.	33,020,439	34,273,639	131,993	332,652
June	132,934,667	133,784,539	13,740,797	Mar.	15,349,596	15,756,272	24,173	49,618
July	122,945,548	124,276,098	20,243,604	Apr.	8,796,666	9,029,851	12,420	114,674
Aug.	150,564,179	151,445,670	11,836,824	May	4,470,071	4,979,881	22,950	215,233
4th Qtr.	406,444,394	409,506,307	45,821,225	4th Qtr.	28,616,333	29,766,004	59,543	379,525
Total	1,716,425,123	1,727,799,413	231,582,515	Total	120,978,826	127,924,243	500,889	1,463,793
1988/89:				1988/89:				
Sept.	150,843,842	151,736,284	26,656,522	June	12,108,210	12,402,962	102,245	258,289
Oct.	170,295,536	171,523,785	19,499,969	July	11,513,586	11,757,762	38,739	88,239
Nov.	149,632,839	151,030,488	18,319,440	Aug.	2,214,904	2,500,232	24,394	145,962
1st Qtr.	470,772,217	474,290,557	64,475,931	1st Qtr.	25,836,700	26,660,956	165,378	492,490
Dec.	172,492,326	173,546,904	27,975,619	Sept.	8,758,198	8,833,519	21,017	90,049
Jan.	175,221,513	176,487,573	32,501,841	Oct.	1,432,089	2,161,176	30,378	57,096
Feb.	154,909,994	158,177,973	33,002,703	Nov.	2,452,268	3,055,490	73,371	126,759
2nd Qtr.	502,623,839	508,212,450	93,480,163	2nd Qtr.	12,642,555	14,050,185	124,766	273,904
Mar.	202,840,169	206,563,860	30,648,140	Dec.	15,121,435	15,440,102	29,605	51,848
Apr.	177,475,933	180,898,856	28,248,011	Jan.	84,517	417,785	115,957	154,015
May	211,303,127	212,764,901	21,239,060	Feb.	81,490	439,958	65,245	112,585
3rd Qtr.	591,619,229	600,227,617	80,135,211	3rd Qtr.	15,287,442	16,297,845	210,807	318,448
June	223,487,607	225,359,132	24,105,107	Mar.	1,964,297	2,424,381	22,487	70,294
July	133,145,813	135,157,047	25,119,434	Apr.	13,817,421	14,373,832	27,765	69,774
Aug.	106,804,440	109,287,340	22,869,115	May	9,781,368	10,571,462	27,121	60,581
4th Qtr.	463,437,860	469,803,519	72,093,656	4th Qtr.	25,563,086	27,369,675	77,373	200,649
Total	2,028,453,139	2,052,534,143	310,184,961	Total	79,329,783	84,378,661	578,324	1,285,491
1989/90:				1989/90:				
Sept.	113,776,974	116,262,446	37,711,379	June	7,412,020	8,169,340	73,555	134,619
Oct.	174,744,707	177,648,151	33,729,330	July	9,666,205	10,690,552	99,550	154,363
Nov.	293,764,931	296,074,486	22,408,755	Aug.	9,513,210	9,985,797	60,059	185,406
1st Qtr.	582,286,612	589,985,083	93,849,464	1st Qtr.	26,591,435	28,845,689	233,164	474,388
Dec.	258,806,792	260,538,272	19,612,697	Sept.	8,060,139	9,274,483	137,368	245,862
Jan.	239,115,226	241,832,437	33,378,612	Oct.	4,634,063	5,354,195	86,668	183,582
Feb.	183,701,798	186,664,605	28,182,429	Nov.	4,520,961	5,397,789	46,922	103,742
2nd Qtr.	681,623,816	689,035,314	81,173,738	2nd Qtr.	17,215,163	20,026,467	270,958	533,185
Mar.	192,735,660	195,963,452	31,489,112	Dec.	9,913,639	10,571,944	55,999	83,079
Apr.	193,839,027	198,739,081	27,544,536	Jan.	6,243,980	7,000,416	59,397	93,083
May	214,184,922	216,778,666	22,232,389	Feb.	6,895,254	7,084,286	36,769	65,525
3rd Qtr.	600,759,609	611,481,199	81,266,037	3rd Qtr.	23,052,873	24,656,646	152,165	241,687
June	201,188,588	204,096,201	12,501,897	Mar.	4,789,751	5,024,081	66,607	102,001
July	147,757,179	150,908,438	14,517,610	Apr.	8,399,072	9,812,500	72,009	110,947
Aug.	153,686,452	157,627,664	23,760,673	May	8,907,697	9,086,501	32,389	63,663
4th Qtr.	502,632,219	512,632,303	50,780,180	4th Qtr.	22,096,520	23,923,082	171,005	276,611
Total	2,367,302,256	2,403,133,899	307,069,419	Total	88,955,991	97,451,884	827,292	1,525,871
1990/91:				1990/91:				
Sept.	106,371,404	109,121,558	18,212,586	June	11,117,511	11,513,895	97,249	1,570,662
Oct.				July	9,710,720	10,087,119	40,805	85,623
Nov.				Aug.	10,034,339	10,539,636	44,949	110,455
1st Qtr.				1st Qtr.	30,862,570	32,140,650	183,003	1,766,740
				Sept.	1,988,455	3,087,526	126,235	169,601

1/ Total corn exports include grain only (white, yellow, seed, relief), dry process (cornmeal for relief, as grain, grits), and wet process (corn starch, sugar dextrose, glucose, high fructose). Sorghum includes seed and unmilled. Barley includes grain only (grain for malting purposes, other) and barley malt. Oats includes grain and oatmeal (bulk and packaged).

Source: Bureau of the Census, U.S. Department of Commerce.



Appendix table 12--Corn, sorghum, barley, and oats imports: 1987/88 to date 1/

Year and month	Corn		Sorghum	Year and month	Barley		Oats	
	Grain only	Total			Grain only	Total	Grain only	Total
Bushels				Bushels				
1987/88:				1987/88:				
Sept.	130,361	151,725	0	June	683,655	895,759	3,730,421	3,760,272
Oct.	354,333	373,790	24	July	195,998	445,492	1,717,932	1,735,424
Nov.	77,145	101,481	15	Aug.	220,222	434,668	1,541,932	1,582,741
1st Qtr.	561,839	626,996	39	1st Qtr.	1,099,875	1,775,919	6,990,285	7,078,437
Dec.	246,126	298,521	0	Sept.	1,061,243	1,396,437	1,712,779	1,744,204
Jan.	126,012	167,032	0	Oct.	926,329	1,222,581	1,270,484	1,372,822
Feb.	332,569	388,773	19	Nov.	876,498	1,209,701	5,106,952	5,148,944
2nd Qtr.	704,707	854,326	19	2nd Qtr.	2,864,070	3,828,719	8,090,215	8,265,970
Mar.	593,592	683,203	12	Dec.	1,146,248	1,384,778	2,537,116	2,566,987
Apr.	662,637	739,543	50	Jan.	1,846,528	2,038,574	4,086,315	4,154,507
May	113,606	140,762	0	Feb.	1,318,218	1,605,421	9,164,122	9,210,252
3rd Qtr.	1,369,835	1,563,508	62	3rd Qtr.	4,310,994	5,028,773	15,787,553	15,931,746
June	347,181	376,601	0	Mar.	1,163,560	1,280,709	6,426,933	6,482,646
July	257,479	275,042	0	Apr.	986,537	1,063,805	3,701,098	3,737,802
Aug.	169,701	207,314	7,229	May	876,452	961,089	4,721,106	4,756,988
4th Qtr.	774,361	858,957	7,229	4th Qtr.	3,026,549	3,305,603	14,849,137	14,977,436
Total	3,410,742	3,903,787	7,349	Total	11,301,488	13,939,014	45,717,190	46,253,589
1988/89:				1988/89:				
Sept.	148,437	177,913	0	June	1,596,106	1,700,185	5,680,015	5,772,502
Oct.	296,701	308,058	3,673	July	930,207	1,029,127	2,276,583	2,365,501
Nov.	180,789	233,514	0	Aug.	317,223	417,363	4,298,356	4,485,006
1st Qtr.	625,927	719,485	3,673	1st Qtr.	2,843,536	3,146,675	12,254,954	12,623,009
Dec.	106,151	173,241	0	Sept.	240,729	365,319	2,059,442	2,367,645
Jan.	307,023	723,699	0	Oct.	402,245	555,196	3,995,388	4,239,340
Feb.	178,260	591,385	15,130	Nov.	1,523,621	1,651,752	5,834,991	6,184,617
2nd Qtr.	591,434	1,488,325	15,130	2nd Qtr.	2,166,595	2,572,267	11,889,821	12,791,602
Mar.	420,381	742,935	0	Dec.	490,420	578,085	4,696,591	5,153,441
Apr.	633,060	845,387	5	Jan.	729,443	838,489	6,100,483	6,906,243
May	162,021	356,329	0	Feb.	1,627,551	1,720,819	9,313,487	10,172,629
3rd Qtr.	1,215,462	1,944,651	5	3rd Qtr.	2,847,414	3,137,393	20,110,561	22,232,313
June	33,363	212,637	14	Mar.	762,924	851,359	7,169,256	8,042,377
July	223,459	382,968	0	Apr.	753,742	857,654	4,750,564	5,431,135
Aug.	93,469	348,056	0	May	1,136,714	1,239,385	6,723,912	7,307,316
4th Qtr.	350,291	943,661	14	4th Qtr.	2,653,380	2,948,398	18,643,732	20,780,828
Total	2,783,114	5,096,122	18,822	Total	10,510,925	11,804,733	62,899,068	68,427,752
1989/90:				1989/90:				
Sept.	38,078	278,865	0	June	1,649,125	1,745,195	3,146,832	3,791,155
Oct.	307,119	553,242	0	July	571,185	661,468	6,440,929	6,730,677
Nov.	297,019	545,010	0	Aug.	1,356,499	1,456,086	7,372,277	7,823,880
1st Qtr.	642,216	1,377,117	0	1st Qtr.	3,576,809	3,862,749	16,960,038	18,345,712
Dec.	196,134	568,554	0	Sept.	263,515	360,996	5,871,691	6,236,194
Jan.	247,828	427,823	0	Oct.	204,334	283,661	4,460,867	4,779,170
Feb.	92,762	248,372	0	Nov.	1,517,596	1,674,049	7,146,334	7,452,067
2nd Qtr.	536,724	1,244,749	0	2nd Qtr.	1,985,445	2,318,706	17,478,892	18,467,431
Mar.	182,222	320,108	74,979	Dec.	2,157,989	2,471,341	13,163,137	13,441,248
Apr.	162,070	340,157	826	Jan.	823,485	951,218	4,913,651	5,106,850
May	275,032	540,454	42,236	Feb.	1,396,491	1,556,043	4,198,054	4,343,569
3rd Qtr.	619,324	1,200,719	118,041	3rd Qtr.	4,377,965	4,978,602	22,274,842	22,891,667
June	33,491	302,083	23,864	Mar.	1,412,309	1,513,346	3,990,713	4,076,976
July	135,597	409,747	75,398	Apr.	1,333,963	1,417,784	8,366,698	8,475,874
Aug.	32,720	259,866	8,410	May	1,468,205	1,585,804	3,318,193	3,416,974
4th Qtr.	201,808	971,696	107,672	4th Qtr.	4,214,477	4,516,934	15,675,604	15,969,824
Total	2,000,072	4,794,281	225,713	Total	14,154,696	15,676,991	72,389,376	75,674,634
1990/91:				1990/91:				
Sept.	29,118	260,345	5,551	June	603,614	691,947	6,675,422	6,766,369
Oct.				July	309,116	547,246	5,841,249	5,908,451
Nov.				Aug.	117,460	357,140	4,998,143	5,090,611
1st Qtr.				1st Qtr.	1,030,190	1,596,333	17,514,814	17,765,431
				Sept.	117,510	200,053	2,240,097	2,358,047

1/ Corn includes grain only (yellow dent corn, other), seed, and cornmeal. Sorghum is grain only. Barley includes grain only (barley for malting, other), pearl barley, milled, and malting. Oats includes grain (hulled or unhulled), unhulled oats fit and unfit for human consumption, and oatmeal fit for human consumption.

Source: Bureau of the Census, U.S. Department of Commerce.



Appendix table 13--Shipments of grain on the Illinois Waterway and the Mississippi River (Locks 11-22), 1981/82-1990/91

Crop year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Million tons													
1981/82	3.4	3.4	4.6	3.9	1.2	0.8	2.1	4.1	3.8	4.4	3.9	5.0	3.4
1982/83	4.1	3.2	4.2	3.2	2.7	2.3	5.8	3.3	3.9	4.2	4.2	4.8	3.6
1983/84	5.3	4.9	5.7	4.4	1.0	3.6	4.5	5.3	4.4	3.7	3.4	3.3	4.1
1984/85	3.1	4.6	5.5	3.1	2.0	0.9	3.1	4.1	3.1	3.2	3.4	3.0	3.3
1985/86	2.4	2.6	4.3	3.3	1.8	1.7	2.9	3.4	3.6	3.2	2.5	3.3	2.9
1986/87	3.2	3.1	5.2	2.4	1.2	1.7	3.6	3.8	4.0	3.8	2.8	3.5	3.2
1987/88	3.3	3.8	3.9	2.9	1.9	2.0	3.0	4.2	4.3	3.6	2.7	3.3	3.2
1988/89	3.3	3.3	3.9	3.5	1.7	1.5	2.6	3.5	4.3	4.1	3.9	3.4	3.3
1989/90	3.0	3.9	4.7	2.5	2.2	2.2	3.5	4.5	5.2	4.5	5.0	4.0	3.7
1990/91	3.6	3.4											3.5

Source: Mississippi River Barge Traffic, U.S. Army Corps of Engineers, Rock Island District.

Appendix table 14--Barge rates for grain shipments to New Orleans, Louisiana, 1984/85-1990/91 1/

Crop year	Origin	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Dollars/ton														
1984/85	Peoria, IL	7.77	8.07	6.71	5.79	7.34	6.87	5.73	5.08	4.33	4.76	4.83	4.63	5.99
	St. Louis, MO	5.94	5.92	5.15	3.98	4.36	4.20	3.88	3.79	3.29	3.39	3.34	3.64	4.24
1985/86	Peoria, IL	5.26	7.93	6.48	9.08	7.22	5.64	4.28	4.13	3.90	3.70	3.70	6.21	5.63
	St. Louis, MO	4.32	6.42	4.80	5.35	4.39	3.87	3.18	3.14	2.97	2.99	2.96	4.62	4.08
1986/87	Peoria, IL	8.37	10.54	6.64	5.16	4.95	5.23	6.96	5.88	5.44	6.16	6.15	6.46	6.50
	St. Louis, MO	6.52	7.52	5.06	3.62	3.28	3.52	5.27	4.54	3.77	4.30	4.37	4.99	4.73
1987/88	Peoria, IL	8.66	9.04	7.38	5.68	7.32	6.89	8.16	7.25	6.19	9.86	9.79	7.61	7.82
	St. Louis, MO	6.58	6.97	5.73	4.29	4.39	4.59	6.13	5.47	4.65	7.56	6.81	6.46	5.80
1988/89	Peoria, IL	9.80	10.32	7.88	8.81	7.32	7.26	7.08	5.85	5.34	6.13	4.92	5.13	7.15
	St. Louis, MO	7.91	8.35	5.94	6.11	5.19	5.31	5.40	4.18	3.72	4.44	3.68	3.92	5.35
1989/90	Peoria, IL	5.89	10.49	10.87	12.15	9.13	7.32	6.43	7.70	6.43	5.47	4.56	5.40	7.65
	St. Louis, MO	4.64	7.90	6.84	7.05	5.23	5.07	4.92	5.64	4.82	3.99	3.22	3.96	5.27
1990/91	Peoria, IL	6.33	7.38											6.86
	St. Louis, MO	4.76	5.57											5.16

1/ Assumes all traffic on the Illinois River originates at Peoria.

Source: Based on rates reported by Transportation Situation, Illinois Dept. of Agriculture.

Appendix table 15--Weekly average of railcar loadings of grain and soybeans, 1979/80-1990/91

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Carloads													
1979/80	28,576	32,118	32,558	30,500	30,504	31,025	30,170	26,546	23,606	28,333	32,584	32,921	29,953
1980/81	32,127	24,114	31,450	28,106	34,396	31,108	27,657	23,490	21,291	28,014	22,162	26,152	27,506
1981/82	25,607	25,609	27,419	22,384	22,967	27,220	26,813	25,798	23,755	22,540	27,020	25,123	25,188
1982/83	20,321	29,523	25,350	21,888	24,700	26,318	26,807	21,243	20,849	21,393	27,942	27,461	24,483
1983/84	29,735	31,414	29,515	25,927	31,068	29,105	27,666	26,784	23,616	24,335	26,632	29,848	27,970
1984/85	29,162	24,482	28,587	25,441	29,310	23,688	23,340	20,164	17,715	24,724	22,662	20,218	23,791
1985/86	18,889	26,227	28,214	23,482	25,424	22,558	20,648	17,743	17,673	24,907	24,426	24,342	22,878
1986/87	27,329	33,605	29,877	24,827	23,086	26,663	27,134	25,046	26,189	32,154	32,257	30,825	28,249
1987/88	32,977	32,820	29,947	29,225	32,223	34,224	34,241	32,963	30,861	33,316	29,678	27,010	31,624
1988/89	29,014	30,628	27,140	27,120	30,324	30,583	31,436	30,181	25,943	27,253	25,095	25,990	28,392
1989/90	24,437	28,950	31,721	29,422	32,691	32,378	29,486	27,938	25,775	27,945	25,609	26,798	28,596
1990/91	23,984	27,135											25,560

Source: Association of American Railroads.

Appendix table 16--Rail freight rate index for grain, crop years 1979/80-1990/91

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
December 1984=100													
1979/80	64.2	69.5	69.6	70.2	70.2	71.4	70.5	72.7	72.8	73.3	76.6	76.9	71.5
1980/81	78.3	78.8	78.8	79.2	83.1	84.1	85.0	84.8	84.8	85.7	88.0	88.5	83.3
1981/82	88.5	89.4	89.4	89.4	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	92.1
1982/83	93.0	93.0	93.0	93.0	93.9	93.9	93.9	93.9	93.9	93.9	93.9	93.9	93.6
1983/84	93.9	94.2	94.2	94.2	98.0	98.0	98.0	98.0	98.0	98.0	98.4	98.4	96.8
1984/85	98.4	100.0	100.0	100.0	100.0	100.0	99.3	99.3	98.7	97.3	98.4	98.3	98.8
1985/86	98.0	98.0	98.0	98.0	98.9	99.0	99.0	99.1	99.2	99.2	99.2	99.2	98.7
1986/87	99.2	98.5	98.5	97.8	98.3	98.3	98.8	98.6	98.5	98.6	98.6	98.5	98.5
1987/88	98.9	99.2	99.1	98.5	101.2	101.2	101.4	102.7	104.1	104.3	106.4	109.3	102.2
1988/89	109.3	108.3	108.5	108.2	109.2	109.2	108.8	108.8	108.8	108.0	108.4	108.4	108.7
1989/90	108.4	108.6	108.7	108.7	109.1	109.1	109.1	109.7	109.7	109.2	109.0	110.5	109.0
1990/91	111.0	111.4											111.2

Source: Bureau of Labor Statistics, U.S. Department of Labor.

Appendix table 17--Hay (all): Acreage, yield, supply and disappearance, 1984/85-1990/91

Item	Unit	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91 1/
Acreage harvested	Mil. acres	61.4	60.4	62.3	60.1	65.1	63.4	61.7
Yield per acre	Tons	2.45	2.46	2.49	2.45	1.94	2.29	2.45
Carryover (May 1)	Mil. tons	20.1	26.9	26.7	32.3	27.1	17.5	27.1
Production	"	150.6	148.7	155.4	147.5	126.0	145.4	151.5
Supply	"	170.7	175.6	182.1	179.8	153.1	162.9	178.6
Disappearance	"	143.8	148.9	149.8	152.7	135.6	135.8	NA
Roughage-consuming animal units (RCAU's)	Mil. units	83.2	80.5	78.3	76.3	76.3	76.3	77.7
Supply per RCAU	Tons	2.05	2.18	2.33	2.36	2.01	2.13	2.30
Disappearance per RCAU	"	1.73	1.85	1.91	2.00	1.78	1.78	NA

NA = Not available.  
1/ Preliminary.

Appendix table 18--Hay: Average prices received by farmers, United States, by month, 1983/84-1990/91 1/

Year	May	June	July	Aug.	Sept.	Oct. 2/	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Average 3/
\$/ton													
Alfalfa:													
1983/84	83.80	78.30	77.40	77.40	79.10	82.40	80.10	81.70	82.00	85.10	84.40	84.30	81.33
1984/85	87.10	80.10	75.60	72.80	73.90	76.70	74.30	77.50	76.20	76.40	75.80	76.70	76.93
1985/86	85.50	74.90	72.50	68.10	70.70	70.50	67.70	69.10	70.20	71.30	72.00	69.80	71.86
1986/87	69.50	64.10	61.40	60.10	58.80	59.90	57.90	60.70	58.80	61.10	62.80	67.90	61.92
1987/88	76.30	66.90	65.10	66.30	67.60	67.70	63.70	67.40	66.50	69.60	72.50	76.90	68.88
1988/89	84.50	81.90	87.90	86.10	87.30	90.30	92.20	94.40	96.70	99.40	105.00	107.00	92.73
1989/90	107.00	99.80	90.60	87.70	90.70	92.20	91.70	91.70	93.50	94.10	96.90	99.10	94.58
1990/91	110.00	96.30	93.50	90.30	91.00	91.70							
Other hay:													
1983/84	58.90	56.10	54.30	52.90	57.80	59.50	62.10	64.30	63.30	63.80	64.90	66.50	60.37
1984/85	64.90	63.40	61.80	61.40	60.90	62.40	62.00	62.60	64.80	64.70	61.70	58.40	62.42
1985/86	58.70	54.00	57.00	58.40	58.60	58.20	55.30	56.00	56.10	56.00	54.80	54.90	56.50
1986/87	54.00	50.90	50.00	51.00	52.70	50.00	49.70	49.40	48.10	50.90	48.30	48.20	50.27
1987/88	51.90	50.80	49.60	51.00	51.80	51.10	52.30	51.10	52.20	51.50	51.70	51.90	51.41
1988/89	59.30	62.00	65.10	68.10	68.90	69.00	70.00	69.50	70.00	72.10	73.60	76.70	68.69
1989/90	78.30	67.50	63.70	63.50	65.90	62.40	62.60	63.30	66.00	66.00	68.40	65.60	66.10
1990/91	67.30	64.00	65.60	65.20	65.10	65.90							
All hay:													
1983/84	78.10	72.70	71.20	71.20	74.70	76.80	75.10	76.70	76.60	78.70	79.40	79.80	75.80
1984/85	82.50	76.10	72.40	70.40	70.70	73.10	71.40	73.40	73.00	73.10	72.20	72.50	72.70
1985/86	80.80	70.20	67.90	65.20	67.10	67.50	64.30	65.40	65.80	66.70	67.10	66.20	67.60
1986/87	66.70	61.00	58.80	58.20	57.60	57.90	56.00	57.70	56.10	58.50	59.20	64.10	59.70
1987/88	71.70	62.90	61.20	62.70	64.10	64.20	61.10	63.20	62.80	64.60	67.20	71.40	65.10
1988/89	79.70	77.00	81.60	81.40	82.90	85.10	86.40	87.60	89.50	91.80	96.90	101.00	85.20
1989/90	103.00	93.30	84.40	81.90	84.70	85.10	83.60	83.10	85.00	85.60	88.50	91.60	86.00
1990/91	101.00	87.80	85.60	84.40	85.70	86.00							

1/ Prices reported for mid-month. 2/ October 1990 is preliminary. 3/ U.S. season-average prices weighted by monthly marketings for all hay.

Source: Agricultural Prices, Agricultural Statistics Board, USDA.

Appendix table 19--Processed feeds: Quantity fed, 1982-90 1/ 2/

	1982	1983	1984	1985	1986	1987	1988	1989	1990 3/
	1,000 metric tons								
High proteins:									
Oilseed meal--									
Soybean 4/	17,514	15,980	17,672	17,318	18,495	19,316	17,833	20,457	20,638
Cottonseed	1,495	1,022	1,595	1,379	1,026	1,442	1,481	1,238	1,506
Linseed	94	112	106	105	119	116	104	121	113
Peanut	67	68	111	161	94	112	165	106	115
Sunflower	433	240	307	313	269	381	306	277	300
Canola	53	99	145	121	206	206	279	249	225
Total	19,656	17,521	19,936	19,397	20,209	21,573	20,168	22,449	22,897
Animal proteins--									
Tankage and meat meal	2,133	2,102	2,523	2,540	2,395	2,457	2,328	2,300	2,310
Fishmeal and solubles	412	453	589	464	471	353	263	265	270
Milk products	361	368	386	374	399	197	407	399	410
Total	2,906	2,923	3,498	3,378	3,265	3,007	2,998	2,964	2,990
Grain protein feeds--									
Gluten feed and meal	757	1,281	1,876	1,055	1,165	1,484	1,289	462	1,000
Brewers' dried grains	195	135	142	135	146	120	107	120	118
Distillers' dried grains	682	564	807	873	805	1,035	947	920	930
Total	1,634	1,980	2,825	2,063	2,116	2,639	2,343	1,502	2,048
Other:									
Wheat millfeeds	5,139	5,078	5,084	5,278	5,715	5,652	5,555	5,580	5,690
Rice millfeeds	434	461	456	503	610	551	615	569	590
Dried and molasses beetpulp	519	536	728	701	645	699	661	744	780
Alfalfa meal	887	898	808	777	589	554	365	292	305
Fats and oils	659	670	672	765	832	826	944	972	980
Molasses, inedible	232	2070	2407	1887	1771	1598	1593	1,988	2000
Miscellaneous byproduct feeds 5/	1,270	1,267	1,267	1,267	1,267	1,267	1,267	1,267	1,267
Total	11,230	10,980	11,422	11,178	11,429	11,147	11,000	11,412	11,612
Grand total	35,426	33,404	37,681	36,015	37,019	38,366	36,509	38,328	39,547

1/ Year beginning October. 2/ Adjusted for stocks, productions, foreign trade, and nonfeed uses where applicable. 3/ Forecast.  
 4/ Includes use in edible soy products and shipments to U.S. territories. 5/ Allowance for hominy feed, oat millfeeds, and screenings.

Appendix table 20--Feed concentrates, number of animal units, and feed per unit, 1982-90 1/

	1982	1983	1984	1985	1986	1987	1988	1989	1990
	Million metric tons								
Concentrates:									
Corn	115.1	97.3	103.9	105.5	119.4	122.2	101.1	113.2	119.4
Sorghum	12.6	9.8	13.7	16.9	13.6	14.1	11.9	13.1	11.2
Oats	6.6	6.7	6.5	6.4	5.5	4.5	3.3	4.9	4.8
Barley	5.9	6.1	6.4	7.2	6.1	5.9	4.1	3.5	3.8
Wheat and rye	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oilseed meals	19.7	17.5	19.9	19.4	20.2	21.6	20.2	22.4	22.9
Animal protein feeds	2.9	2.9	3.5	3.4	3.3	3.0	3.0	3.0	3.0
Grain protein feeds	1.6	2.0	2.8	2.1	2.1	2.6	2.3	1.5	2.0
Other byproduct feeds	11.2	11.0	11.4	11.2	11.4	11.1	11.0	11.4	11.6
Total	175.7	153.3	168.2	172.0	181.6	185.1	156.9	173.1	178.7
Grain-consuming animal units (GCAU's):									
Dairy cattle	12.4	12.4	12.1	12.5	11.7	11.5	11.4	11.4	11.4
Cattle on feed	18.5	17.8	19.1	18.0	17.3	18.2	17.5	17.8	18.1
Other cattle	4.8	4.7	4.5	4.3	4.2	4.0	4.0	4.0	4.1
Hogs	20.5	20.4	19.8	19.3	19.4	20.8	21.3	20.6	21.0
Poultry	18.3	18.6	19.0	19.8	21.1	21.5	22.0	23.1	24.2
Other livestock	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
Total	75.2	74.6	75.2	74.5	74.4	76.7	77.0	77.7	79.5
Concentrates/GCAU:									
Four feed grains	1.86	1.61	1.74	1.83	1.94	1.91	1.56	1.73	1.75
All concentrates	2.34	2.05	2.24	2.31	2.44	2.41	2.04	2.23	2.25

1/ Marketing years, 1990/91 forecast.

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